PROJECT TITLE: Proposed Repair and Improvement of College of Technology Building (COT)
LOCATION: USTP CDO, CM Recto, Lasapan, Cagayan de Oro City
OWNER: University of Science and Technology of Southern Philippines
CIVIL/STRUCTURAL: Engr. Ernesto Ch. Quijote
SUBJECT: SPECIFICATIONS- Summary of Materials and Finishes
DATE: October 21, 2026

DIVISION 00
PROCUREMNET AND CONTRACTING REQUIREMENTS

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1. PART GENERAL

1.1 RELATED DOCUMENTS
1.1.1Clarification Form (See ANNEXES for Official Copy of Form)
1.1.2Addenda: Bid Bulletin
1.1.3Record Clarification Notices (See ANNEXES for Official Copy of Form)
1.1.4Record Amendments (See ANNEXES for Official Copy of Form)
1.1.5Technical Drawings
1.1.6Specifications

1.2 SUMMARY
This section specifies documentary and procedural requirements for handling technical queries, addenda, and revisions during the pre-bid stages.

1.3 PROCEDURES
1.3.1CLARIFICATIONS
1.3.1.1 In case of queries, submit clarification forms upon the official release of the invitation to bid.
1.3.1.2 Submit all queries to the official email account of IPFDO (see upper right corner of this page for email address), complete with attachments, i.e. annotated copies of the architectural technical working drawings and/or specifications highlighted in relation to the clarification/query and other attachments deemed necessary by the bidder i.e. sample brochures, etc.
1.3.1.3 Submit equivalent hardcopies of emailed accomplished clarification forms within two days after sending the email. No hardcopies submitted, no official responses will be issued.
1.3.1.4 For phased construction work, include extent of scope of work in clarifications.

1.3.2ADDENDA: BID BULLETIN
1.3.2.1 Issue Bid bulletins in the event of owner-approved changes/addenda with significant cost impact.
1.3.2.2 Issuance of Bid Bulletins are by proponents, to be fairly published to all participating bidders.

1.3.3RECORD CLARIFICATION NOTICES
Record all clarification issuances via a roster of issued clarification notices. Include dates of issuance, status of response, and date responded in the records.

1.3.4RECORD AMENDMENTS

Record all addenda/ amendments issued and answered during the bid phase via a roster of clarification notices. Include dates of issuance, status of response, and date responded in the records.

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2. PART 2 PRODUCTS
No queries related to product substitution allowed during the bidding phase. Official technical specifications will prevail.

3. PART 3 EXECUTION
No queries related to product execution allowed during the bidding phase. Official technical specifications will prevail.

END OF SECTION

DIVISION 01
GENERAL REQUIREMENTS

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1. PART 1 GENERAL

1.1 RELATED DOCUMENTS
1.1.1Technical Drawings
1.1.2Specifications
1.1.3Requests for Interpretation
1.1.4Product Samples and Brochures
1.1.5Manufacturer's Data Sheets and Certificates
1.1.6Material Safety Data Sheets
1.1.7Samples and Mock-Ups
1.1.8Work Program and Methodology Submittals

1.2 WORK COVERED BY CONTRACT DOCUMENTS
This section specifies work covered by the contract documents to be consistent with issues Instruction to Bidders and Special Conditions of this contract.

1.3 RELATED SECTIONS
1.3.101 17 00 Execution Requirements

2. PART 2 PRODUCTS

2.1 MANUFACTURER QUALIFICATIONS
Product specifications are itemized per material division with specific manufacturer qualifications, i.e. ISO, ASTM, etcetera. Manufacturer qualifications are relative and pertinent to each material division. Refer to material division in subject for detailed manufacturer qualifications.

2.2 MOCK-UPS
Specific material divisions such as ornamental caseworks and steel fabrications require mock-up approvals prior to implementation. See material division for detailed procedures.

2.3 PRODUCT REQUIREMENTS

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Refer to signed physical plans for details on the specified product performance requirements. Secure proper product approval from the designers prior to site implementation. Refer to the procedures process of this section for the general procedure.

2.4 PRODUCT SUBSITITUTION
Requests for product substitutions are subject to the approval of the designers and noted by the owners. Follow the proper procedure and attach required submittals as specified per material division. The contractor is obliged to indicate whether or not the substitution will incur an impact on the agreed contract costs, such that the agreed contract cost is rendered insufficient or excessive.

2.5 SUPPLIER QUALIFICATIONS
Only contract suppliers with active ISO qualifications and sufficient supply stocks for items specified requiring mass quantities. Ensure that suppliers are equipped with warehousing facilities within the Project's vicinity, have good service performance records for supplying and handling supplies, and have good delivery records to the project site, with minimal delays, in sufficient quantities, and of maximum quality.

2.6 TESTING AND INSPECTING SERVICES
Observe required testing and inspecting services for items marked critical in particular material divisions. Review testing and inspecting requirements as specified in particular material divisions. The job site is subject to inspection by the owner and designer at any time during the progress of work. Any work found inconsistent with technical working drawings are subject to rework, regardless of whether or not the item subject to rework is found later during the work progress.

2.7 PROCEDURES
2.7.1SUMMARY - APPROVALS
Secure all product, execution, and substitution approvals consistent with project timelines. No documentary product approval shall be basis or cause of delays in the approved project implementation schedule.

2.7.2PRODUCT APPROVAL
Attach duly accomplished official approval forms (see Annex), with markings "Product Approval", complete with corresponding submittal attachments and product performance requirements as required per material division to all product approval requests. Attachments will include product samples, mock-ups, manufacturer qualifications, and other documents as indicated in each material division.

2.7.3PRODUCT SUBSTITUTION APPROVAL
Attach duly accomplished official approval forms (see Annex), with markings "Product Substitution", complete with corresponding submittal attachments and product performance requirements as required per material division to all product substitution requests.

In addition to official approval forms, attach a duly accomplished product comparison form (see ANNEX), complete with samples, mock-ups, manufacturer qualifications, and other attachments required per material division.

2.7.4SOURCE QUALITY CONTROL PROCEDURES
Multiple supply sources are acceptable only if the product is the same, consistent, and duly approved. Secure a separate product approval for similar items procured from different suppliers. Refer to material divisions for required submittals. Follow the procedure for product approval (refer to section 2.7.3. PRODUCT SUBSTITUTION APPROVAL).

3. PART 3 EXECUTION

3.1 CONTRACTOR QUALITY CONTROL

This section shall be consistent with eligibility requirements stated in the Instruction to Bidders.

The proponents/owners of the project are entitled to employing a contractor of choice, by bidding following the RA 12009 otherwise known as NEW GOVERNMENT PROCUREMENT ACT provided that contractors involved in the works are equipped as follows:

3.1.1All contractors and builders involved in the scope of works of the project, whether general contractors, specialty contractors, or subcontractors are licensed and valid members of the Philippine Contractors Accreditation Board during the time of bidding and the entire duration of the construction of the project.
3.1.2All contractors have the financial capacity to acquire the appropriate equipment and manpower for use in the

completion of the scope of works, especially for specialty construction involving expertise, i.e. paint works, steel fabrications, and other items specified.
3.1.3All contractors have a sound organizational structure, with a manpower of experienced technical personnel qualified to administer proper supervision of the required work.
3.1.4All contractors duly comply with civil liabilities as prescribed by the prevailing rule of law in the country and regional jurisdiction wherein the project is situated.
3.1.5All contractors are liable to the annual renewal of his license as prescribed by law.
3.1.6Ensure compliance with basic safety requirements as prescribed by the rule of law, including the national building code of the country and regional jurisdiction where project site is situated.
3.1.7All contractors shall comply with the conditions as stipulated in the Instruction to Bidders and Special Conditions of the Contract.

3.2 EXECUTION REQUIREMENTS
Secure execution approvals by submitting duly accomplished official approval forms (see Annex), with markings "Execution Approval", complete with a detailed work program and methodology. Refer to execution requirements as specified in every material division. Refer to appropriate subsections for detailed execution requirements.

3.3 EXECUTION SUBSTITUTION
Secure execution substitution approvals by submitting duly accomplished official approval forms (see Annex), with markings "Execution Approval", complete with a detailed work program and methodology. Submit execution substitution requests via formally submitted requests.

3.4 FABRICATOR QUALIFICATIONS
Ensure that specialty fabricators follow fabricator qualification requirements as specified in plans.

3.5 INSTALLER QUALIFICATIONS
Ensure that contracted installers will follow qualifications as specified in plans

3.6 TESTING AND INSPECTING SERVICES
Ensure that fabricated specialty items are compliant to competent testing and inspecting procedures. Refer to material divisions for detailed performance requirements, tests, and inspection proceedings required per material. Furnish copies of test and inspection results for all contracted fabricators and constructors.

3.7 TESTING LABORATORY SERVICES
Furnish copies of laboratory tests as specified by each material division.

3.8 PROCEDURES
3.8.1SUMMARY
Approval schedule shall not be in conflict with approved project implementation schedules.

3.8.2EXECUTION APPROVAL
The general procedure will include the official submission of execution approval forms (see Annexes for a copy of the official form to be utilized) with corresponding execution submittal attachments as specified per material division. Attachments will include work program and methodology submittals.

3.8.3EXECUTION SUBSTITUTION APPROVAL
For execution substitution, the general procedure will include the official submission of execution approval forms with a clear indication of execution substitution (see Annexes for a copy of the official form to be utilized) with corresponding submittal attachments and execution performance requirements as

specified per material division. The changes and similarities of the specified from the proposed execution must be clearly outlined and justified.

END OF SECTION

01 00 00	DIVISION 1 GENERAL REQUIREMENTS
01 17 00	Execution Requirements

1. **PART 1 GENERAL**
   1.1 RELATED DOCUMENTS
   1.1.1Technical Drawings
   1.1.2Specifications
   1.1.3Requests for Interpretation
   1.1.4Land and property surveys certified by surveyor
   1.1.5Final property surveys showing the work performed and recorded survey data

   1.2 SUMMARY
   This section includes general prescribed proceedings in execution of general construction work. Refer to each material division for specific execution requirements, especially for special fabrications. General construction work is listed as follows:

   1.2.1Construction Layout
   1.2.2Field engineering and surveying
   1.2.3General installation of products
   1.2.4Coordination of owner-installed products
   1.2.5Protection of installed construction
   1.2.6Correction of the Work

   1.3 RELATED SECTIONS
   1.3.1Requests for Interpretation

   1.4 WARRANTIES
   The following should be included in the Contractor's warranties:
   1.4.1Warrant that materials and equipment furnished under the Contract are of good quality and new unless otherwise required or permitted by the Contract Documents
   1.4.2Warrant that the Work will be free from defects and conforms to the requirements of the Contract Documents. Work not conforming to the contract documents are defective, therefore subject to revision and correction according to the drawings and specifications.
   1.4.3Warrant that all substitutions implemented on site are properly approved and authorized; work without proper approval are considered defective.
   1.4.4Defects and damages NOT executed by the Contractor, i.e. improper or insufficient maintenance of equipment systems that have been turned-over, improper operation, or normal wear and tear and normal usage are excluded from the warranties. In the event that defects and damages occurred upon partial completion of the project or in the duration of the construction, the Owner and Architect may require the Contractor to furnish satisfactory evidence as to the kind and quality of materials and equipment utilized.
   1.4.5**At the minimum, all warranties should be in pursuant to the provisions of RA 9184 otherwise known as the 2016 GOVERNMENT PROCUREMENT REFORM ACT.**

   1.5 CONTRACTOR RESPONSIBILITIES
   1.5.1Perform and complete works as stipulated in the technical working drawings, the performance specifications, and related contracted documents.
   1.5.2The contractor shall comply with all permitting requirements as needed to commence the project and to facilitate proper turnover for the full occupancy of the owner. Permits include building permit application, permit requests for tree removal, excavation permits, fencing permits for both temporary and permanent facilities, occupancy permits, and other permits as needed to complete the project and facilitate the smooth turnover of the project. In case of conflict between approved scope of works, technical drawings, and this specifications, scope of work and physical plans shall prevail.
   1.5.3In performing the work, the contractor is obliged to keep organized, correct, and truthful records of the progress of construction. Included in this documentation are shop drawings, details, execution and work methodology procedures, as well as information furnished by the owner or the designer. Organize the records such that any changes decided upon during construction are traceable.

1.5.4 The contractor is obliged to thoroughly review all contract documents, technical working drawings, and specification and ensure that the implementation on the project site is as true to the drawings as possible. In case of inconsistencies between drawings, specifications, actual site conditions, and similar issues resulting to confusion on the work to be implemented on site, the contractor is obliged to file a Request for Interpretation/Clarification to the Design Team. Follow procedures as prescribed during the kick-off conference.

1.5.5 Take field measurements and ensure that drawings are feasible. In case of conflict, inform the design team via execution and work methodology approvals or requests for interpretation through the construction management team and wait for official responses prior to implementation.

1.5.6 The contractor is obliged to properly inform the Construction Manager of any errors, inconsistencies, or omissions discovered in the technical working drawings. The Construction Manager shall in turn consult with designers to manage and resolve any incurred conflicts.

1.5.7 Carefully examine the existing site conditions and ascertain that the actual surveyed location is accurate.

1.5.8 Secure a copy of contract documents, soil borings, and relevant data in order to verify the nature, location, and character of the project and the site, including without limitation, the surface and subsurface conditions and all structures and obstruction both natural and man-made within and around the project site vicinity. Contracts may be requested from the IPFDU or procured by the contractor depending on stipulations on the scope of work, terms of reference, instruction to bidders, and special conditions of the contract.

1.5.9 The contractor is responsible for all erroneous work administered on site without the due information and approval of the architect. Included in this responsibility is the shouldering of costs in the event that the work is to be revised for correction.

1.5.10 All Site supervision, direction, and administration of all site work is the responsibility of the Contractor.

1.5.11 Construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work under the Contract are the responsibilities of the contractor unless otherwise stated in the contract documents.

1.5.12 If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the evaluation of the jobsite safety of such means, methods, techniques, sequences or procedures is the responsibility of the Contractor. If specifications are deemed unsafe, the Contractor shall give timely written notice to the Owner and Architect via and shall not proceed with that portion of the Work without further written instructions from the Architect.

1.5.13 The contractor is obliged to inform IPFDU through the construction manager or project coordinators of any substitutions to occur on site. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any resulting loss or damage.

1.5.14 The Contractor is responsible for the acts and the quality of work of its employees, subcontractors, including their agents and employees and other work commissioned by the contractor on site.

2. PART 2 PRODUCTS

Refer to specific material divisions for product particulars.

3. PART 3 EXECUTION

3.1 SITE INVESTIGATION PRIOR TO COMMENCEMENT OF WORK

The contractor is to examine existing conditions and verify location of existing site utilities, existing structures, vegetation, and other considerations existing on site before beginning work. Include subsurface equipment in this investigation. Verify invert elevations at points of connections for sanitary sewers, storm sewers, underground electrical wiring, and water service piping existing on site. Furnish location data acquired to the architect. In case of conflict and inquiries, the contractor shall inform the construction manager to facilitate resolution.

3.2 FIELD MEASUREMENTS

Take field measurements as required to fit the Work properly. Recheck measurements before installing each product.
Verify all dimensions prior to fabrication. Coordinate fabrication schedules with construction progress.

3.3 CONSTRUCTION LAYOUT

Verify all layout shown in the technical working drawings. Engage professional and experienced surveyors to establish information shown on the Drawings, especially related to site benchmarks and layout. In case of discrepancies, inform the Architect via a Request for Interpretation. Record all layout control work, coordinates of benchmarks, including deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member and types of instruments and tapes used. Furnish a copy of the records to the Architects on critical progresses of work.

Engage a professional, experienced, and licensed surveyor to conduct the following activities:

3.3.1 Location and establishment of benchmarks and control points at each story of the construction, and elsewhere needed.
Note: Do not relocate existing benchmarks or control points without securing a written approval from the Architect. Inform the architect of the need for relocation by filing an official Request for Clarification (See Annex for official forms)

3.3.2 Establish dimensions accurately.

3.3.3 Record all benchmark locations, both horizontal and vertical data.

3.3.4 Notify and disseminate to installers, the correct and accurate lines and levels.

3.3.5 Check the accuracy of the location, level and plumb, of every major element as the work progresses and duly notify the Construction Manager of any discrepancies.

3.3.6 Close site surveys with an error of closure equal to or less than the standard established.

3.3.7 Locate and layout control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work.

3.3.8 Transfer survey markings and elevations for use with control lines and levels when a written approval by the Architect or Construction Manager has been secured.

3.3.9 Establish temporary reference points necessary to complete and commence specific construction work, provided that these reference points are removed when the work in subject has been completed. Do not delete temporary reference points without proper recording.

3.3.10 Prepare certified survey records showing dimensions, locations, elevations, and angles for every major site improvement completed on site, specifically completion of foundation works, completion of every floor or zone as decided by the construction manager with the conformity of owners and designers.

3.3.11 Prepare and submit a final property survey showing the real records and features of the finished project, namely actual floor to floor ceiling heights, final building height, benchmarks and coordinates of critical underground facilities, if any. Show boundary lines, streets, tree data, adjacent properties, landmarks, grade contours, and the distance and bearing from a site corner to a legal point. Certify this document and certify all data as accurate and true and be labeled by authorities as the official property survey.

3.4 INSTALLATION

3.4.1 Verify that the location of the work to be implemented is accurate, correctly aligned, and correctly elevated.

3.4.2 Plumb all vertical work and level all horizontal work. Work with specific angles must be properly reviewed on the drawings and correctly laid out.

3.4.3 Unless otherwise indicated with special treatment, conceal all pipes, ducts, and wiring in finished areas.

3.4.4 Unless otherwise indicated, all headroom clearances must be maintained at least 2.40M for mechanically ventilated areas and 2.70M for areas with natural ventilation. Follow indications on technical working drawings if prescribed heights are above the minimum.

3.4.5 Comply with written instructions and recommendation for installation as provided by manufacturers and suppliers.

3.4.6 Conduct installation works at times and conditions that ensures the best possible results.

3.4.7 Maintain installed works in good condition throughout the duration of construction until final completion of the project.

3.4.8 Conduct construction and installation work without damaging the operations of other works within its vicinity.

3.4.9 Do not use tools, equipment and methods, that produces noise levels that are hazardous to human health.

3.4.10 Check that the measurements on the shop drawings are in accordance to actual site conditions.

3.4.11 When using anchors and fasteners, secure the fasteners such that they are accurately located and do not obstruct any mandatory clearance heights. Where mounting heights are not indicated, propose to the Architect via a duly written request for clarification/interpretation to mount components according to standards. Installation proceeds when the architect issues an approval.

3.4.12 Install all joints to the best visual effect, such that all joints are of uniform width, and if the work is exposed, that the joints are arranged as neatly as possible unless otherwise indicated by the technical working drawings and specifications.

3.4.13 Ensure the safety of all installation work and take care not to damage any separate work in the vicinity.

3.4.14 Test all equipment and tools to be used and ensure that it is safe and is in good working condition. Replace all parts as needed to ensure maximum efficiency.

3.5 SITE PREPARATION

If upon investigation, existing site conditions are deemed unsuitable for work intended to commence, duly inform the architect and the owners via written notice. Included in this section are issues on utilities, i.e. electrical posts that need to be relocated, water pipe utilities that need to be adjusted, abandoned, or terminated, as well as other pertinent issues affecting the intended design. Included in the written notice are the following information:

3.5.1 Description of the work to be commenced

3.5.2 List of detrimental conditions

3.5.3 List of unacceptable installation tolerances

3.5.4Recommended corrections.
3.5.5Authorities that need to be informed.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

Whenever any portion of work is completed prior to the substantial completion of the proj ect, ensure that the installed or completed portion of work is protected, without damage, and without deterioration up to the substantial completion of the project.

3.7 CORRECTION OF THE WORK

3.7.1Any defective construction should be repaired, removed, or replaced. This includes the restoration of any damages incurred on the finishes or substrates during the time work.
3.7.2Repairs include material touch-ups on painted finishes and replacement of units on substrates, or the cutting and patching of portions of masonry or chipped portions of the substrate.
3.7.3Repair all components that are not in good working condition.
3.7.4Remove and replace chipped, scratched and broken glass, mirrors, and similar surfaces.
3.7.5Ensure that the original condition of the finish or substrate is maintained after correction.

END OF SECTION

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01 00 00	DIVISION 1 GENERAL REQUIREMENTS	
01 17 10	Final Cleaning	1 of 2

1. **PART 1 GENERAL**

1.1 RELATED DOCUMENTS
1.1.1Technical Drawings
1.1.2Specifications

1.2 **SUMMARY**
This section specifies administrative and procedural requirements for final cleaning upon completion of scope of works. Specific cleaning agents and procedures are specified in each material division. Ensure that cleaning and waste disposal procedures are compliant with local laws and ordinances. Do not dispose flammable, volatile, and poisonous wastes in storm or sanitary drains of the project. Ensure that no debris, rubbish, or other waste material will be burned, buried, and improperly disposed, especially not within the premises of the project site.

2. **PART 2** PRODUCTS
2.1 CLEANING AGENTS
Review product-specific requirements of cleaning agents and materials recommended by the manufacturer or fabricator or the surface and material to be cleaned.

3. PART 3 EXECUTION
3.1 SAFETY AND PRECAUTION
3.1.1Ensure safety handling of cleaning agents that are hazardous to health or safety of the property. Secure the safe storage of volatile cleaning agents and ensure that it is only accessible to authorized personnel.
3.1.2Organize storage of cleaning materials and agents on site to allow maximum access, no traffic barriers, and no unnecessary material wastage.
3.1.3Properly dispose debris, scrap, and waste materials on a daily basis. Accumulation of wastes is a safety hazard. Ensure that disposal management proceedings do not destroy the ecology of the project site and its neighboring vicinities.

3.2 PROGRESS CLEANING
3.2.1Demonstrate sample-cleaning work before cleaning the entire surface area to be cleaned. Check that the cleaning agent and material that was sample-cleaned does not change the immediate properties of its surfaces before proceeding with complete clean-out.
3.2.2Complete all cleanout works one week prior to the scheduled turnover to ensure maximum time for inspection.

3.3 FINAL CLEANOUT
3.4 Comply with local laws and ordinances for all waste-removal operations.
3.5 Comply with manufacturer's written instructions on maintenance and operations.
3.6 Clean the project site, yard, and grounds of construction activities. Ensure that the landscape development area is clear of any waste material and other foreign substances.
3.7 Sweep and wipe all paved areas and finished flooring. Remove stains and other deposits.
3.8 Do not clean surfaces marked for natural weathering.
3.9 Rake all pervious grounds free from foreign waste.
3.10 Remove all construction tools, machinery and equipment from the project site.
3.11 Clean all exposed surface areas, both interiors and exteriors. Ensure that it is free from stains and similar substances.
3.12 Do not paint over labels, especially specialized marks namely "UL" and fire rating marks. Do not excessively clean these labels such that the surface marks become illegible.
3.13 Vacuum all soft surfaces, i.e. carpet flooring, sofa, wooden ceilings, and all surfaces with crevices etc.
3.14 Clean and polish all transparent materials such as mirrors, glass partitions, door lights, vision windows, etc. Replace

broken or chipped glass and mirrors and ensure that surfaces are free from scratches. If the glass surface has a texture enhancement sticker, ensure that the sticker is adjoined to the surface neatly and properly and is not chipped off by excessive cleaning.

3.15 Wipe the surfaces of all mechanical and electrical equipment such that it is dust free. There should be no excess lubricants and similar chemicals on the surface of the equipment.

3.16 Clean plumbing and sanitary fixtures to a sanitary condition. Wipe it free of stains and foreign markings, including hard water marks.

3.17 Replace all disposable air filters. Wipe all diffusers, registers, and grills free from surface dust, stains, and foreign markings.

3.18 Clean light fixtures, lamps, bulbs, globes, and reflectors such that it is free from surface dust, stains, and is functional at maximum efficiency.

3.19 All bulbs must be in working condition. Replace dimmed, old bulbs with new bulbs in good working conditions.

END OF SECTION

PERFORMANCE SPECIFICATIONS – IPFDO
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01 00 00	DIVISION 1 GENERAL REQUIREMENTS	
01 17 30	Operation and Maintenance Data	1 of 3

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1Technical Drawings

1.1.2Specifications

1.2 SUMMARY

This section specifies administrative and procedural requirements for the management of operation and maintenance data for turnover to the proponents upon completion of the project.

1.3 PREPARATION OF MAINTENANCE MANUALS

1.3.1Include in the manual all information specified in individual specification divisions

1.3.2Ensure that technical personnel charged in the preparation of maintenance manuals are properly trained and experienced. Include clear written instructions to communicate critical steps in maintenance. Accompany written instructions with diagrams and drawings for clarity.

1.3.3Operation and maintenance manuals must be of a manageable size, bounded by a heavy duty binder, and properly labeled on the front and spine of the hard bound binder.

1.3.4Neatly fold oversized drawings attach and check that punch holes do not damage any critical information.

1.3.5Prepare, orient, and transfer knowledge on the following manuals:

1.3.5.1 Building operating systems

1.3.5.2 Equipment operating systems

1.3.5.3 Preservation and maintenance manuals of all products and finishes

1.4 PROCEDURES OF MANAGING MANUALS

1.4.1Furnish one copy of the operation and maintenance manual to the design team, and another copy to the owner's side via the property management team.

1.4.2Duly demonstrate the contents of the manual during the turnover process. Coordinate a schedule for site walk-thru and maintenance demonstration.

1.5 MANUAL CONTENT

1.5.1MATERIAL AND FINISHES MAINTENANCE MANUAL

1.5.1.1 Complete manufacturer name

1.5.1.2 Manufacturer's address and contact details

1.5.1.3 Manufacturer's catalog number

1.5.1.4 Care and maintenance instructions

1.5.1.5 Color and Texture code and swatch

1.5.1.6 Re-ordering information

1.5.1.7 Applicable standards

1.5.1.8 Chemical composition

1.5.1.9 Installation details

1.5.1.10 Inspection procedures

1.5.1.11 Maintenance information

1.5.1.12 Repair procedures

1.5.2EQUIPMENT OPERATION AND MAINTENANCE MANUAL Include the following information in the manual:

1.5.2.1 General system or equipment description including functions

1.5.2.2 Start-up procedures

1.5.2.3 Equipment or system break-in

1.5.2.4 Routine and normal operating instructions

1.5.2.5 Regulation and control procedures

1.5.2.6 Instruction on stopping

1.5.2.7 Shutdown and emergency instructions

1.5.2.8 Required sequences for electric or electronic systems

1.5.2.9 Special operating instructions

1.5.2.10 Operating characteristics

1.5.2.11 Servicing schedule

1.5.2.12 Control diagrams
1.5.2.13 Circuit Directories
1.5.2.14 Valve tag diagrams
1.5.2.15 Printed operating and maintenance instructions
1.5.2.16 Maintenance Assembly drawings and diagrams
1.5.2.17 List recommended spare parts that should be stocked
1.5.2.18 Limiting conditions
1.5.2.19 Performance curves
1.5.2.20 Engineering data and tests
1.5.2.21 Complete nomenclature and number of replacement parts
1.5.2.22 Design factors and assumptions
1.5.2.23 Copies of applicable shop drawings and product data
1.5.2.24 System and equipment manufacturer
1.5.2.25 Equipment model number
1.5.2.26 Equipment serial number
1.5.2.27 Operating Instructions
1.5.2.28 Emergency Instructions
1.5.2.29 Wiring diagrams
1.5.2.30 Safety diagrams
1.5.2.31 Inspection and test procedures
1.5.2.32 Maintenance procedures and schedules
1.5.2.33 Precautions against improper use and maintenance
1.5.2.34 Copies of warranties
1.5.2.35 Repair instructions and spare parts listing
1.5.2.36 Routine operations
1.5.2.37 Trouble-shooting guide
1.5.2.38 Disassembly, repair and re-assembly instructions
1.5.2.39 Alignment, adjusting and checking instructions
1.5.2.40 Supply sources of required maintenance materials and related services
1.5.2.41 Index

2. **PART 2 PRODUCTS**
   2.1 TAGS
   Label equipment with proper tags such that it can be properly referred to on the manual.

3. **PART 3 EXECUTION** (NOT APPLICABLE)

END OF SECTION

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01 00 00	DIVISION 1 GENERAL REQUIREMENTS	
01 17 70	Closeout Procedures	1 of 3

1. **PART 1 GENERAL**
   1.1 RELATED DOCUMENTS
   1.1.1Technical Drawings
   1.1.2Specifications

   1.2 SUMMARY
   This section includes administrative and procedural requirements for closeout proceedings. Warranties and inspection procedures are included.

   1.3 PARTIAL OCCUPANCIES
   Partial occupancies will be managed following final closeout procedures. Include documents delineating and demarcating the portion that is ready for turnover, i.e. highlighted and demarcated floor plans and a complete listing of equipment systems for final turnover.

   1.4 PROCEDURES FOR INSPECTION
   1.4.1Submit a written request for inspection for substantial completion to the owner side.
   1.4.2Deploy an inspection team composed of duly represented owner sides, designer sides, and builder's side for joint inspection.
   1.4.3On the owner's side, prepare a list of items for re-inspection. A copy of the list must be furnished to the owner and the contractors for reference.
   1.4.4Schedule a time for re-inspection of all items not accepted. Correct all punch-listed items until substantial turnover.

   1.5 PROCEDURES FOR RE-INSPECTION
   1.5.1Request for re-inspection when the work identified in previous inspections are completed and corrected.
   1.5.2Prepare punch lists specific to the item of work for closeout. Indicate a remarks column for marking whether items are accepted or for revision. Indicate causes of revision.
   1.5.3Close and resolve all punch lists by the third round of inspection.
   1.5.4Proceed with Final Completion when all punch lists are accepted.

   1.6 PROCEDURES AND DOCUMENTS TO ACCOMPLISH PRIOR TO FINAL INSPECTION OF COMPLETION OF WORK
   1.6.1Advise owner on warranty periods, workmanship bonds, maintenance service agreements, final certifications, and similar documents. Furnish a copy of warranties, certificates and similar documents to the owner.
   1.6.2**Obtain all release permits that allow the owners unrestricted access and use of the services, utilities, and other features of the building. Include occupancy permits, operating certificates, and similar documents. Facilitate proper turn over and document release to the client.**
   1.6.3Prepare and submit project record documents, operation and maintenance manuals, final completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

   1.6.4Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
   1.6.5Deliver labeled keys and permanent locks to the owner. Demonstrate to the owner's personnel in charge of security the due location of all locks and instruct accordingly.
   1.6.6Startup and test all equipment systems.
   1.6.7Submit test/adjust/balance records.
   1.6.8Remove and demolish temporary facilities, mock-ups, construction tools, scaffolds, and similar items from the project site.
   1.6.9Complete all final cleaning and restoration requirements, including painting touch ups and repairs of damaged or exposed finishes
   1.6.10 Submit a final application for payment.
   1.6.11 Submit a copy of all punch listed items with remarks as completed, corrected, and accepted, duly certified by the architect or the technical working group. Clearly indicate in the punch list that all identified works are inspected, corrected, completed, and accepted.

1.6.12 Submit evidence of final, continuing insurance coverage complying with insurance requirements.
1.6.13 Submit pest-control final inspection report and warranty.

1.7 PUNCH LIST CONTENT

1.7.1 Prepare three copies of the punch list, one copy must be furnished to the designers, one copy for the owner's representative, and one copy for the builders.
1.7.2Organize spaces for inspection in sequential order, according to the route that will be taken on site.
1.7.3Organize items applying to each space by major element and by category:
- 1.7.3.1 Ceiling
- 1.7.3.2 Individual Walls
- 1.7.3.3 Floors
- 1.7.3.4 Equipment
- 1.7.3.5 Building Systems

1.7.4Include the following information inside the punch list:
- 1.7.4.1 Project name
- 1.7.4.2 Date of inspection schedule
- 1.7.4.3 Date of re-inspection
- 1.7.4.4 Page number
- 1.7.4.5 Signature of Contractor
- 1.7.4.6 Signature of Architect

1.8 WARRRANTIES

Organize warranty documents into an orderly sequence based on the table of contents of the project manual.
1.8.1Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents.
1.8.2Provide heavy paper dividers with plastic covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number if installer.
1.8.3Identify each binder on the font and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

2. PART 2 PRODUCTS

Use appropriate cleaning agents as recommended by particular manufacturers. See the final cleanout section of this division for detailed procedures.

3. PART 3 EXECUTION

3.1 PEST CONTROL

Inspect that the project site is free of rodents, insects, and other pests. Submit a certification duly issued, signed and certified by an experienced and licensed exterminator.

END OF SECTION

01 00 00	DIVISION 1 GENERAL REQUIREMENTS	
01 26 63	Requests for Interpretation	1 of 2

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1Technical Drawings
1.1.2Specifications
1.1.3Clarification Form (See ANNEXES for Official Copy of Form)
1.1.4Record Clarification Notices (See ANNEXES for Official Copy of Form)

1.2 SUMMARY

This section specifies administrative and procedural requirements in the event of clarifications, assistances required in plan interpretation, and other similar information required from the technical and design team to assure maximum accuracy in construction. The contractor is obliged to thoroughly review all contract documents, especially technical drawings prior to the commencement of construction.

1.3 PROCEDURE

This section specifies administrative and procedural requirements in the event of clarifications, assistances required in plan interpretation, and other similar information required from the technical and design team to assure maximum accuracy in construction. The contractor is obliged to thoroughly review all contract documents, especially technical prior to the commencement of construction.

1.3.1Submit clarification forms upon issuance of notice to proceed.
1.3.2Submit all queries to the official email accounts of the IPFDU (see upper right corner of this page for email address), complete with attachments, i.e. annotated copies of the architectural technical working drawings and/or specifications highlighted in relation to the clarification/query and other attachments deemed necessary by the bidder i.e. sample brochures, etc.
1.3.3Submit equivalent hardcopies of emailed accomplished clarification forms within two days after sending the email. No hardcopies submitted, no official responses will be issued.
1.3.4The IPFDU will only be accountable to changes that are issued with official approvals issued by the IPFDU.

1.4 RECORD CLARIFICATION NOTICES

Record all clarification issuances via a roster of issued clarification notices. Include dates of issuance, status of response, and date responded in the records.

2. PART 2 PRODUCTS

Refer to product approval procedures. Clarification forms are reserved for technical working drawings and specification queries only. All product approvals must be processed accordingly. Refer to the procedure on section 01 25 13 of this division.

3. PART 3 EXECUTION

Execution approvals are separate from clarifications and queries. Refer to the procedure on execution approval in section 01 25 16 of this division.

END OF SECTION

01 00 00	DIVISION 1 GENERAL REQUIREMENTS	
01 26 46	Construction Change Directives	1 of 2
01 26 57	Change Order Requests	1 of 2
01 26 63	Change Orders	1 of 2

1. **PART 1 GENERAL**

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings

1.1.2 Specifications

1.2 SUMMARY

This section specifies administrative and procedural requirements in the event of modifications on construction directives, such as modifications on the technical drawings, specifications, the adjustment of the agreed scope of work, etc., that shall result to change order requests and change orders. The contractor cannot amend the agreed scope of work unless a change order has been issued by the technical team of the IPFDU.

The following section includes generic procedural advice for Construction Change Directives, Change Orders, Change Order Requests, and general management of material specifications. Note that material-specific procedural advice is indicated in each material division. **All amendments should be in pursuant to RA 12009 otherwise known as the New Government Procurement Act.**

1.3 MINOR CHANGES IN WORK

Minor changes in work are work classified as without cost-impact and can therefore be implemented once a written approval from the IPFDU is secured. This includes resulting advice from Requests for Interpretation, Approved Product Substitution, and approved Execution Substitution. The contractor is obliged to properly indicate product substitutions and execution substitutions submitted and as such mark the attached Approval forms to as "Without Cost Impact".

2. **PART 2 PRODUCTS**

The designers shall prescribe the performance specification of all materials and finishes on the technical working drawings. The execution of each shall be indicated through this specification or by the prescribed installation manuals and brochures of the approved material. The contractor is obliged to install the material consistent with requirements stipulated on the plans and on this specification. Any material replacement or substitutions shall be approved by the IPFDU. If with cost impacts, such replacements shall incur change orders which shall be reviewed and approved by the procuring entity upon the recommendation of the IPFDU prior to implementation. No changes with significant cost impacts shall be implemented with the approval of the procuring entity.

3. **PART 3 EXECUTION**

3.1 CHANGE ORDER PROCEDURES

3.1.1 The owner/ procuring entity will issue via a written request, official changes that are to be implemented on the project.

3.1.2 No amendments to the original contract work shall commence on the project site without official approvals and orders by the procuring entity.

3.1.3 Amendments that are not aligned with the guidelines of RA9184 are not acceptable.

3.1.4 The contractor, owner, and designers are to maintain detailed records of all construction change directives.

END OF SECTION

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DIVISION 02
GENERAL REQUIREMENTS

02 00 00	GENERAL REQUIREMENTS	
02 10 00	Operation and Maintenance of Field Office for the Engineer (Item A.1.1(16))	
02 20 00	Mobilization and Demobilization (Item B.9)	
02 30 00	Occupational Safety and Health (Item B.7)	

SECTION 02 10 00 – OPERATION AND MAINTENANCE OF FIELD OFFICE FOR THE ENGINEER (Item A.1.1(16))

1. **PART 1 GENERAL**

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 02 20 00 Mobilization and Demobilization

1.1.7 Section 02 30 00 Occupational Safety and Health

1.2 SUMMARY

This section specifies the provision, operation and maintenance of a field office for the exclusive use of the Owner's Engineer and project inspectors for the duration of the Contract, including utilities, furnishings, cleaning, security and maintenance required by the Contract Documents.

The field office shall be ready for use before the start of the works and shall remain available until final acceptance, unless the Engineer directs otherwise.

1.3 GENERAL PROVISION

1.3.1 Unless the Bid Documents or Special Conditions of Contract state otherwise, the field office shall be weatherproof, lockable, adequately lit and ventilated, and sized to accommodate the Engineer, inspectors and a plan table for meetings and review of drawings.

1.3.2 The Contractor shall bear all costs of operation and maintenance, including electricity, potable water, communications/internet access, janitorial services and security, for the duration stated in the Contract.

1.3.3 The location of the field office shall be subject to the approval of the Engineer and shall not obstruct building access, egress routes, fire lanes, utilities or the works.

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.6 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.7 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.4 MAINTENANCE

1.4.1 Clean the field office daily and keep it safe, serviceable and accessible to the Engineer during working hours.

1.4.2 Replace defective furniture, fixtures, equipment and utilities promptly, within the period reasonably required by the Engineer.

1.4.3 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.4 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit a list and specification of the furniture, equipment and facilities to be provided in the field office for approval.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit the proposed location and layout (sketch plan) of the field office for approval before installation.

1.5.2.2 Submit the proposed arrangement for utilities, security and janitorial services.

1.5.2.3 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.3.1 Date and time of work, and area of application

1.5.2.3.2 Manpower, equipment and tools to be used

1.5.2.3.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.3.4 Protection of occupied areas and adjacent finishes

1.5.2.3.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 The field office shall conform to the requirements of the Contract, the National Building Code, the Fire Code and DOLE occupational safety and health standards for temporary facilities.

1.6.2 Provide a first-aid kit, portable fire extinguisher and potable drinking water in the field office.

1.7 WARRANTIES

1.7.1 Not applicable to temporary facilities, except for the Contractor's obligation to restore affected areas to their original condition.

2. PART 2 PRODUCTS

2.1 FACILITIES

2.1.1 Office accommodation of the size and type required by the Contract: an enclosed, weatherproof structure with lockable doors and windows, or an approved room within the existing building.

2.1.2 Furniture, as specified in the Contract or, if not stated, at minimum: work tables, chairs, a plan table or drawing rack, a filing cabinet with lock and a bulletin board.

2.2 UTILITIES AND EQUIPMENT

2.2.1 Lighting, electrical outlets, ventilation (and air-conditioning when required by the Contract), communications and internet access, and other facilities as specifically required in the Contract.

2.2.2 Safety items: first-aid kit, portable fire extinguisher, emergency lighting and signage.

3. PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Install the field office at the location approved by the Engineer, with safe access and protection from site hazards.

3.1.2 Connect and test all utilities and provide the Engineer written notice that the office is ready for occupancy.

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3.2 OPERATION AND MAINTENANCE

3.2.1 Keep the office safe, clean, serviceable and accessible during working hours.

3.2.2 Provide and maintain utilities and replace defective items promptly.

3.3 REMOVAL AND RESTORATION

3.3.1 Remove temporary facilities and restore affected areas to their original condition at completion, unless otherwise directed by the Engineer.

END OF SECTION

SECTION 02 20 00 – MOBILIZATION AND DEMOBILIZATION (Item B.9)

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 02 10 00 Operation and Maintenance of Field Office for the Engineer

1.1.7 Section 02 30 00 Occupational Safety and Health

1.1.8 Section 01 17 00 Execution Requirements

1.2 SUMMARY

This section specifies the provision of labor, equipment, tools, temporary facilities, transport and other resources needed to mobilize, execute and demobilize the Works, including site logistics for work on an occupied building.

1.3 GENERAL PROVISION

1.3.1 Mobilization includes the transport of personnel, equipment, tools and materials to the site, setting-up of temporary storage, work areas and facilities, and all preparatory work required before the start of the actual works.

1.3.2 Demobilization includes removal of all equipment, temporary facilities, surplus materials and debris, and restoration of the site to the condition required by the Contract.

1.3.3 Coordinate lifting arrangements, material routes and storage with the building administrator to avoid disruption of building operations.

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.6 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.7 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.4 MAINTENANCE

1.4.1 Maintain temporary storage and work areas in a clean, orderly and secure condition throughout the duration of the works.

1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit the list and specifications of the principal equipment and temporary facilities to be mobilized.

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1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit a mobilization plan, equipment list, work schedule and site logistics plan, including material delivery routes and lifting arrangements, for approval.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application

1.5.2.2.2 Manpower, equipment and tools to be used

1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.2.4 Protection of occupied areas and adjacent finishes

1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Equipment shall be in good working condition, with valid inspection or registration documents where required by law, and operated only by trained and qualified operators.

1.7 WARRANTIES

1.7.1 Not applicable, except for the Contractor's obligation to restore areas affected by mobilization and demobilization.

2. PART 2 PRODUCTS

2.1 EQUIPMENT AND TEMPORARY FACILITIES

2.1.1 Equipment, tools and temporary facilities appropriate to the scope of work and site conditions, including temporary storage, workers' welfare facilities and site enclosures.

2.1.2 Barricades, signage and protection materials for occupied portions of the building.

3. PART 3 EXECUTION

3.1 MOBILIZATION

3.1.1 Verify access, lifting arrangements, temporary storage and protection of occupied portions of the building before moving equipment and materials to the work areas.

3.1.2 Mobilize only the equipment required for the approved sequence of work.

3.2 DEMOBILIZATION

3.2.1 Demobilize only after completion of the works, removal of debris and acceptance of restoration works by the Engineer.

3.2.2 Remove temporary structures, signage and barricades and repair any damage caused by mobilization activities.

END OF SECTION

SECTION 02 30 00 – OCCUPATIONAL SAFETY AND HEALTH (Item B.7)

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis
1.1.2 Specifications (Divisions 00 and 01 of this document)
1.1.3 Shop Drawings and Work Methodology Submittals
1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates
1.1.5 Requests for Interpretation / Clarification
1.1.6 Section 01 17 00 Execution Requirements
1.1.7 Section 03 10 00 Removal of Existing Concrete Topping/Structures and Obstructions
1.1.8 Section 04 20 00 Waterproofing (Asphalt)
1.1.9 Section 04 40 00 Beam Steel Jacketing

1.2 SUMMARY

This section specifies the project safety and health measures to be implemented in accordance with applicable Philippine occupational safety and health laws, implementing rules, DPWH requirements and the approved Construction Safety and Health Program (CSHP).

Special emphasis is given to work at height on the roof, torch-applied waterproofing (hot work), demolition and removal works, and beam concrete removal and jacketing.

1.3 GENERAL PROVISION

1.3.1 Comply with Republic Act No. 11058 (An Act Strengthening Compliance with Occupational Safety and Health Standards), its Implementing Rules and Regulations (DOLE D.O. 198-18), DOLE D.O. 13 s. 1998 and applicable DPWH requirements for the safety and health of construction workers.

1.3.2 Submit and implement a Construction Safety and Health Program (CSHP) approved by the DOLE/DPWH in accordance with the Contract, and designate a full-time, accredited safety officer.

1.3.3 Safety and health costs are the responsibility of the Contractor and shall be provided for in the Program of Works.

1.3.4 Stop work and notify the Engineer when an unsafe condition or unexpected structural defect is encountered. Work shall resume only upon written clearance.

1.3.5 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.8 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.4 MAINTENANCE

1.4.1 Inspect safety equipment, guardrails, lifelines, barriers and signage daily; repair or replace defective items immediately.

1.4.2 Keep the work area clear of debris, tripping hazards and combustible materials.

1.4.3 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

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1.4.4 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS
1.5.1.1 Submit specifications and certifications of personal protective equipment, fall-protection systems and fire extinguishers to be used.
1.5.2 EXECUTION APPROVAL ATTACHMENTS
1.5.2.1 Submit the Construction Safety and Health Program, emergency response plan and task-specific job hazard analyses (JHA) for roof work, hot work, demolition and shoring.
1.5.2.2 Submit the hot-work permit procedure for torch-applied membranes and the roster of trained and certified workers for work at height.
1.5.2.3 Submit a detailed work methodology and work schedule indicating at least the following:
1.5.2.3.1 Date and time of work, and area of application
1.5.2.3.2 Manpower, equipment and tools to be used
1.5.2.3.3 Safety measures, including a job hazard analysis specific to the activity
1.5.2.3.4 Protection of occupied areas and adjacent finishes
1.5.2.3.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 The safety officer shall have the training required under DOLE D.O. 198-18 (Basic Occupational Safety and Health Training of at least forty (40) hours, and Construction Safety Training of at least forty (40) hours).

1.6.2 Conduct toolbox meetings, safety inspections and incident reporting, and keep records available for inspection by the Engineer and DOLE.

1.7 WARRANTIES

1.7.1 Not applicable. The Contractor remains liable for all accidents, injuries and damage arising from non-compliance with safety requirements.

2. PART 2 PRODUCTS

2.1 SAFETY EQUIPMENT

2.1.1 Personal protective equipment (hard hats, safety shoes, gloves, eye and respiratory protection, high-visibility vests) and full-body harnesses, lifelines and anchorage conforming to recognized standards.

2.1.2 Barriers, warning signs, guardrails, exclusion-zone tape, fire extinguishers and first-aid supplies sufficient for the size of the workforce.

2.1.3 Shoring, props and temporary supports of adequate capacity for beam concrete removal and jacketing.

3. PART 3 EXECUTION

3.1 GENERAL SAFETY MANAGEMENT

3.1.1 Provide a competent safety officer and conduct toolbox meetings and task-specific risk assessments before each major activity.

3.1.2 Post the required safety signs, including the project billboard and safety notices, at conspicuous locations.

3.2 ROOF AND DEMOLITION WORK

3.2.1 Provide guardrails, lifelines, safe access, fall protection and exclusion zones for roof and demolition work.

3.2.2 Do not allow work on the roof during rain, strong winds or lightning.

3.3 HOT WORK AND SHORING

3.3.1 For torch-applied membranes, implement a hot-work permit system with fire watch, fire extinguishers and protection of combustible materials, in accordance with the Fire Code.

3.3.2 Provide shoring and controlled access during beam concrete removal and jacketing.

END OF SECTION

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DIVISION 03
STRUCTURAL WORKS

03 00 00	**STRUCTURAL WORKS**	
03 10 00	Removal of Existing Concrete Topping/Structures and Obstructions (Item 101(1))	
03 20 00	Structural Steel (Item 1047(1))	
03 30 00	Structural Steel, Trusses (Item 1047(2)(a))	
03 40 00	Structural Steel, Purlins (Item 1047(2)(b))	
03 50 00	Metal Structure Accessories, Anchor Bolts (Item 1047(7)(a))	
03 60 00	Metal Structure Accessories, Sagrods (Item 1047(7)(b))	
03 70 00	Metal Structure Accessories, Steel Plates (Item 1047(8)(a))	

SECTION 03 10 00 – REMOVAL OF EXISTING CONCRETE TOPPING/STRUCTURES AND OBSTRUCTIONS (Item 101(1))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 02 30 00 Occupational Safety and Health

1.1.7 Section 04 30 00 Structural Concrete Injection and Crack Repair

1.1.8 Section 04 40 00 Beam Steel Jacketing

1.1.9 Section 04 10 00 2-inch Cement Screed with Wire Mesh and Hardener

1.2 SUMMARY

This section specifies the removal and disposal of existing roof-deck topping/screed, roofing sheets, gutters, downspouts, obsolete framing, flashings, designated concrete cover and other obstructions identified in the plans or by the Engineer.

Removal works include the temporary protection, shoring and support required to retain the structural integrity of the building and the safe hauling and disposal of debris.

1.3 GENERAL PROVISION

1.3.1 Remove only the items shown on the drawings or designated by the Engineer. Do not remove or cut structural members, reinforcement or utilities that are to be retained without written approval.

1.3.2 Existing structures to remain shall be protected against damage. Damage caused by the Contractor shall be repaired at the Contractor's expense, to the satisfaction of the Engineer.

1.3.3 Materials suspected to contain asbestos or other hazardous substances shall not be disturbed. Stop work and notify the Engineer so that the matter can be handled in accordance with DENR regulations (Republic Act No. 6969 and its implementing rules).

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the

Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.8 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.9 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.10 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Maintain temporary protection, shoring and weather protection in place until the replacement works are installed.

1.4.2 Keep access routes clear of debris and sweep adjoining areas daily.

1.4.3 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.4 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit details of temporary protection, shoring and the proposed disposal site or hauler, including permits where required.

1.5.1.2 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.3 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.4 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit the removal sequence and shoring plan, signed and sealed by a licensed Civil/Structural Engineer when required by the Engineer.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application

1.5.2.2.2 Manpower, equipment and tools to be used

1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.2.4 Protection of occupied areas and adjacent finishes

1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Removal of structural elements shall follow the sequence approved by the Engineer and shall be supervised by a competent foreman at all times.

1.6.2 Verify that retained slab, beams, reinforcement and waterproofing substrates are undamaged after removal; report and repair damage before proceeding.

1.6.3 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

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1.6.4 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.5 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.2 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

1.7.3 The warranty does not cover damage caused by misuse, overloading or acts of God, but it does not relieve the Contractor of liability for defective materials or workmanship.

2. PART 2 PRODUCTS

2.1 EQUIPMENT AND TEMPORARY WORKS

2.1.1 Cutting and chipping tools of a type and size that will not damage the retained structure (hand-held light-duty breakers, saws, hand tools). Heavy impact equipment shall not be used on the roof deck without approval.

2.1.2 Temporary protection, shoring, props, bracing, covers and debris chutes of adequate capacity.

2.1.3 Hauling equipment and approved disposal arrangements.

3. PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Jointly inspect the site with the Engineer and mark the limits of removal before starting work.

3.1.2 Disconnect or protect existing utilities, drains and rainwater outlets within the work area.

3.1.3 Provide temporary supports where required by the approved sequence.

3.2 REMOVAL

3.2.1 Remove topping with controlled methods that do not damage the retained slab, beams, reinforcement, utilities or waterproofing substrates.

3.2.2 Remove beam cover only to approved limits; do not cut or bend existing bars without written approval.

3.2.3 Dismantle roofing sheets, gutters and flashings carefully; keep removed items that are to be salvaged for the Owner in a location designated by the Engineer.

3.3 DISPOSAL AND CLEANING

3.3.1 Protect occupied areas and collect, haul and dispose of debris lawfully, in accordance with RA 9003.

3.3.2 Clean the work area after removal and obtain the Engineer's acceptance of substrate conditions before the succeeding work starts.

END OF SECTION

SECTION 03 20 00 – STRUCTURAL STEEL (Item 1047(1))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 03 30 00 Structural Steel, Trusses

1.1.7 Section 03 40 00 Structural Steel, Purlins

1.1.8 Section 03 50 00 Metal Structure Accessories, Anchor Bolts

1.1.9 Section 03 60 00 Metal Structure Accessories, Sagrods

1.1.10 Section 03 70 00 Metal Structure Accessories, Steel Plates

1.2 SUMMARY

This section specifies the supply, fabrication, delivery, erection, alignment and securing of structural steel members shown on the approved drawings, including cutting, drilling, welding, bolting, surface preparation and protective coating.

Structural steel for this project includes steel trusses, purlins, 5" HSS pipe Sch. 40 members, and the connections, anchor bolts, sagrods and plates covered by the related sections.

1.3 GENERAL PROVISION

1.3.1 Structural steel work shall conform to the National Structural Code of the Philippines (NSCP) 2015, AISC 360 (Specification for Structural Steel Buildings) and AWS D1.1/D1.1M (Structural Welding Code – Steel), unless otherwise indicated on the approved drawings.

1.3.2 Steel grades, member sizes, connection details, weld sizes and coating systems shall be as shown on the approved structural drawings. Do not substitute members or enlarge holes without written approval of the Structural Engineer of Record.

1.3.3 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.4 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.5 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.6 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.7 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.8 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.9 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

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1.4 MAINTENANCE

1.4.1 Protect steel from corrosion during storage, handling and erection. Store above ground on blocking, with free drainage and protection from the weather.

1.4.2 Repair damaged coatings promptly.

1.4.3 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.4 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit mill certificates showing the chemical and mechanical properties of structural steel and certified test reports for bolts, nuts and welding consumables.

1.5.1.2 Submit product data for the primer and finish coating system, including surface preparation requirements and dry film thickness.

1.5.1.3 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.4 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.5 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit fabrication (shop) drawings showing member sizes, connection details, weld symbols, bolt sizes and surface treatments, for approval before fabrication.

1.5.2.2 Submit welding procedure specifications (WPS) and the erection sequence.

1.5.2.3 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.3.1 Date and time of work, and area of application

1.5.2.3.2 Manpower, equipment and tools to be used

1.5.2.3.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.3.4 Protection of occupied areas and adjacent finishes

1.5.2.3.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Structural steel work shall conform to the National Structural Code of the Philippines (NSCP) 2015, AISC 360 (Specification for Structural Steel Buildings) and AWS D1.1/D1.1M (Structural Welding Code – Steel), unless otherwise indicated on the approved drawings.

1.6.2 Welding shall be performed only by welders qualified in accordance with AWS D1.1/D1.1M for the process, position and joint type used. Submit welder qualification records.

1.6.3 Inspect welds visually (AWS D1.1) and, when required by the Engineer, by non-destructive testing (magnetic particle, dye penetrant or ultrasonic) conducted by qualified personnel. Defective welds shall be removed and re-welded at the Contractor's expense.

1.6.4 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.5 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.6 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the structural steel work against defective materials, fabrication, welding and erection, and shall be liable for structural defects for the period prescribed in Section 62 of the IRR of RA 9184.

1.7.2 Protective coating systems shall carry the manufacturer's warranty against premature corrosion, peeling and chalking for the period stated in the approved submittal.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 STRUCTURAL STEEL

2.1.1 Structural steel shapes and plates of the grades specified in the approved drawings, conforming to ASTM A36/A36M, ASTM A572/A572M or equivalent Philippine National Standards (PNS), as indicated. Steel pipe/HSS shall conform to ASTM A53/A53M Grade B or ASTM A500, as indicated.

2.1.2 Bolts, nuts and washers conforming to ASTM A307, ASTM A325 or ASTM F3125, as indicated on the drawings.

2.1.3 Welding electrodes conforming to AWS A5.1 or A5.5 as appropriate for the base metal and welding process.

2.2 PROTECTIVE COATING

2.2.1 Approved surface preparation and primer/coating system (e.g., red-oxide or zinc-rich primer with intermediate and finish coats) suitable for the exposure condition.

2.2.2 Compatible touch-up and repair materials.

3. PART 3 EXECUTION

3.1 FABRICATION

3.1.1 Fabricate to the approved dimensions and tolerances; provide qualified welders and sound, continuous welds of the specified size.

3.1.2 Cut by shearing, sawing or machine-guided thermal cutting; remove slag, burrs and sharp edges. Drill or punch holes at the approved sizes and locations.

3.1.3 Clean steel in accordance with SSPC-SP 2/3 (or equivalent) before applying the shop primer.

3.2 ERECTION

3.2.1 Install members plumb, level and aligned; do not force members into position or enlarge holes without approval.

3.2.2 Provide temporary bracing until the permanent connections are completed and the complete frame is stable.

3.2.3 Tighten bolts using the specified method and verify tightness. Protect completed steel from corrosion.

3.3 FINISHING AND ACCEPTANCE

3.3.1 Repair damaged coatings and remove slag, spatter and sharp edges.

3.3.2 Have welds and connections inspected and accepted by the Engineer before installing roofing or other succeeding work.

END OF SECTION

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SECTION 03 30 00 – STRUCTURAL STEEL, TRUSSES (Item 1047(2)(a))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 03 20 00 Structural Steel

1.1.7 Section 03 40 00 Structural Steel, Purlins

1.1.8 Section 03 50 00 Metal Structure Accessories, Anchor Bolts

1.1.9 Section 03 70 00 Metal Structure Accessories, Steel Plates

1.1.10 Section 05 20 00 Prepainted Metal Sheets Roofing

1.2 SUMMARY

This section specifies the fabrication and erection of roof trusses in the configuration, member sizes and connection details shown on the approved structural drawings, including bracing, gusset plates, connections and protective coating.

1.3 GENERAL PROVISION

1.3.1 Structural steel work shall conform to the National Structural Code of the Philippines (NSCP) 2015, AISC 360 (Specification for Structural Steel Buildings) and AWS D1.1/D1.1M (Structural Welding Code – Steel), unless otherwise indicated on the approved drawings.

1.3.2 Verify bearing points, dimensions and the condition of the existing supporting structure before fabrication. Report discrepancies to the Engineer.

1.3.3 Field modifications to trusses, members or connections require written approval of the Structural Engineer of Record.

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.8 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.9 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.10 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Protect trusses from distortion, damage and corrosion during storage, handling and erection.

1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit mill certificates for steel sections, plates, bolts and welding consumables, and product data for the corrosion-protection coating.

1.5.1.2 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.3 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.4 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit truss shop drawings with camber, member sizes, connection and gusset details and an erection plan including temporary bracing and lifting points.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application

1.5.2.2.2 Manpower, equipment and tools to be used

1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.2.4 Protection of occupied areas and adjacent finishes

1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Structural steel work shall conform to the National Structural Code of the Philippines (NSCP) 2015, AISC 360 (Specification for Structural Steel Buildings) and AWS D1.1/D1.1M (Structural Welding Code – Steel), unless otherwise indicated on the approved drawings.

1.6.2 Welding shall be performed only by welders qualified in accordance with AWS D1.1/D1.1M for the process, position and joint type used. Submit welder qualification records.

1.6.3 Inspect welds visually (AWS D1.1) and, when required by the Engineer, by non-destructive testing (magnetic particle, dye penetrant or ultrasonic) conducted by qualified personnel. Defective welds shall be removed and re-welded at the Contractor's expense.

1.6.4 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.5 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.6 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the structural steel work against defective materials, fabrication, welding and erection, and shall be liable for structural defects for the period prescribed in Section 62 of the IRR of RA 9184.

1.7.2 Protective coating systems shall carry the manufacturer's warranty against premature corrosion, peeling and chalking for the period stated in the approved submittal.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

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1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Structural steel sections, gusset plates, bolts, welding consumables and corrosion-protection coating conforming to the approved design and to Section 03 20 00 Structural Steel.

2.1.2 Temporary bracing materials as required by the erection plan.

3. PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Verify bearing points, dimensions and existing supporting structure before fabrication.

3.1.2 Set anchor bolts, bearing plates and supports and check their elevation and alignment before truss erection.

3.2 ERECTION

3.2.1 Provide temporary bracing and erection supports until the complete stable roof-framing system is achieved.

3.2.2 Install all specified connections and bracing; field modifications require written approval.

3.2.3 Maintain the specified camber, plumbness and spacing of trusses.

3.3 INSPECTION

3.3.1 Inspect alignment, welds, bolts and protective coating before installing roofing.

3.3.2 Repair damaged coating and defective welds before acceptance.

END OF SECTION

SECTION 03 40 00 – STRUCTURAL STEEL, PURLINS (Item 1047(2)(b))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis
1.1.2 Specifications (Divisions 00 and 01 of this document)
1.1.3 Shop Drawings and Work Methodology Submittals
1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates
1.1.5 Requests for Interpretation / Clarification
1.1.6 Section 03 20 00 Structural Steel
1.1.7 Section 03 30 00 Structural Steel, Trusses
1.1.8 Section 03 60 00 Metal Structure Accessories, Sagrods
1.1.9 Section 05 20 00 Prepainted Metal Sheets Roofing

1.2 SUMMARY

This section specifies the supply and installation of steel purlins supporting the new roofing sheets, including cleats, fasteners, bridging and connections shown on the drawings.

1.3 GENERAL PROVISION

1.3.1 Purlin sizes, thicknesses, grades, spacing and connections shall be as shown on the approved drawings and shall be coordinated with the roofing manufacturer's requirements.

1.3.2 Comply with NSCP 2015 and AISI S100 (North American Specification for the Design of Cold-Formed Steel Structural Members) for cold-formed members.

1.3.3 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.4 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.5 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.6 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.7 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.8 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.9 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Store purlins on blocking clear of the ground, protected from moisture, to avoid staining and distortion.

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1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit mill/test certificates for purlins, showing steel grade and base-metal thickness, and product data for cleats, fasteners and coating.

1.5.1.2 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.3 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.4 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit a purlin layout drawing showing spacing, laps, bridging and connection details.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application
1.5.2.2.2 Manpower, equipment and tools to be used
1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity
1.5.2.2.4 Protection of occupied areas and adjacent finishes
1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Purlins shall be delivered with the manufacturer's marking indicating section, thickness and steel grade. Members that do not conform shall be rejected.

1.6.2 Measure the base-metal thickness of delivered purlins on a sample basis when required by the Engineer.

1.6.3 Structural steel work shall conform to the National Structural Code of the Philippines (NSCP) 2015, AISC 360 (Specification for Structural Steel Buildings) and AWS D1.1/D1.1M (Structural Welding Code - Steel), unless otherwise indicated on the approved drawings.

1.6.4 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.5 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.6 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the structural steel work against defective materials, fabrication, welding and erection, and shall be liable for structural defects for the period prescribed in Section 62 of the IRR of RA 9184.

1.7.2 Protective coating systems shall carry the manufacturer's warranty against premature corrosion, peeling and chalking for the period stated in the approved submittal.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Purlins and connection accessories of the sizes, thicknesses and grades specified in the approved plans (cold-formed C- or Z-section purlins conforming to ASTM A653/A653M, ASTM A1011 or equivalent PNS, or structural shapes as indicated).

2.1.2 Cleats, bolts, bridging and corrosion-protection coating as specified.

3. PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Set spacing, laps, orientation and bearing in accordance with the drawings and the roofing manufacturer's requirements.

3.1.2 Secure purlins to trusses and provide bridging/restraints where detailed.

3.2 ALIGNMENT AND PROTECTION

3.2.1 Maintain a straight roof plane and correct alignment; replace distorted or damaged members.

3.2.2 Apply compatible corrosion protection to cut edges and damaged coating.

3.3 INSPECTION

3.3.1 Check the roof plane with string lines or level before roofing is installed. Rectify deviations beyond the approved tolerance.

END OF SECTION

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SECTION 03 50 00 – METAL STRUCTURE ACCESSORIES, ANCHOR BOLTS (Item 1047(7)(a))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 03 20 00 Structural Steel

1.1.7 Section 03 30 00 Structural Steel, Trusses

1.1.8 Section 03 70 00 Metal Structure Accessories, Steel Plates

1.2 SUMMARY

This section specifies the supply and installation of anchor bolts and associated nuts, washers, templates and accessories for structural steel supports as detailed in the approved plans.

1.3 GENERAL PROVISION

1.3.1 Anchor bolt diameter, grade, embedment, projection and corrosion protection shall be as shown on the approved drawings.

1.3.2 Do not cut, heat, bend or relocate anchors without written approval. Record and report discrepancies to the Engineer.

1.3.3 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.4 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.5 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.6 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.7 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.8 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.9 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Protect threads of projecting anchor bolts from damage and corrosion until the base plates are installed.

1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit certificates of conformance for anchor bolts, nuts and washers.

1.5.1.2 For post-installed anchors, submit the manufacturer's technical data and evaluation report (e.g., ICC-ES or equivalent) demonstrating capacity for the application.

1.5.1.3 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.4 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.5 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit the anchor layout and template drawing, with edge distances and embedment depths, for approval.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application

1.5.2.2.2 Manpower, equipment and tools to be used

1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.2.4 Protection of occupied areas and adjacent finishes

1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Anchor bolts shall conform to ASTM F1554 (or other grade shown on the drawings) with nuts and washers of compatible grade.

1.6.2 When required by the Engineer, conduct pull-out tests on post-installed anchors in accordance with ASTM E488 on at least the number of anchors directed.

1.6.3 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.4 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.5 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the structural steel work against defective materials, fabrication, welding and erection, and shall be liable for structural defects for the period prescribed in Section 62 of the IRR of RA 9184.

1.7.2 Protective coating systems shall carry the manufacturer's warranty against premature corrosion, peeling and chalking for the period stated in the approved submittal.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Anchor bolts of the specified diameter, grade, embedment, projection and corrosion protection; nuts and washers compatible with the bolt assembly.

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2.1.2 Post-installed anchors (mechanical or adhesive), if specified, of an approved system, with anchoring adhesive conforming to the manufacturer's requirements.

3. PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Verify anchor locations, edge distances, embedment and base-plate dimensions before installation.

3.1.2 Install plumb and hold in position during concrete placement or the approved anchoring procedure.

3.1.3 Post-installed anchors, if any, shall be of an approved system and installed to the manufacturer's requirements, including hole cleaning and curing time of adhesive.

3.2 PROTECTION AND REPORTING

3.2.1 Do not cut, heat, bend or relocate anchors without written approval; record and report discrepancies.

3.2.2 Check the tightness of anchor nuts after erection of the supported member.

END OF SECTION

SECTION 03 60 00 — METAL STRUCTURE ACCESSORIES, SAGRODS (Item 1047(7)(b))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis
1.1.2 Specifications (Divisions 00 and 01 of this document)
1.1.3 Shop Drawings and Work Methodology Submittals
1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates
1.1.5 Requests for Interpretation / Clarification
1.1.6 Section 03 40 00 Structural Steel, Purlins
1.1.7 Section 03 30 00 Structural Steel, Trusses
1.1.8 Section 03 20 00 Structural Steel

1.2 SUMMARY

This section specifies the supply and installation of sagrods/tie rods and their end fittings to restrain purlins and maintain roof-framing stability as shown on the drawings.

1.3 GENERAL PROVISION

1.3.1 Sagrod diameter, spacing, locations and fittings shall be as shown on the approved drawings.
1.3.2 Sagrods shall not be used to correct misaligned purlins; align purlins first, then install and tension the sagrods.
1.3.3 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.
1.3.4 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.
1.3.5 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.
1.3.6 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.
1.3.7 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.
1.3.8 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.
1.3.9 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Protect threads and galvanizing or coating from damage during handling.
1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

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1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS
1.5.1.1 Submit product data and certificates for steel rods, nuts, washers, turnbuckles and fittings, including the coating or galvanizing specification.
1.5.1.2 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.
1.5.1.3 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.
1.5.1.4 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.
1.5.2 EXECUTION APPROVAL ATTACHMENTS
1.5.2.1 Submit the sagrod layout showing locations, rod sizes and end-fitting details.
1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:
1.5.2.2.1 Date and time of work, and area of application
1.5.2.2.2 Manpower, equipment and tools to be used
1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity
1.5.2.2.4 Protection of occupied areas and adjacent finishes
1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Rods shall be of the specified steel grade and shall be free from bends, kinks and damaged threads. Galvanized rods shall comply with ASTM A153/A153M for hardware or ASTM A123/A123M as applicable.
1.6.2 Structural steel work shall conform to the National Structural Code of the Philippines (NSCP) 2015, AISC 360 (Specification for Structural Steel Buildings) and AWS D1.1/D1.1M (Structural Welding Code - Steel), unless otherwise indicated on the approved drawings.
1.6.3 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.
1.6.4 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.
1.6.5 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the structural steel work against defective materials, fabrication, welding and erection, and shall be liable for structural defects for the period prescribed in Section 62 of the IRR of RA 9184.
1.7.2 Protective coating systems shall carry the manufacturer's warranty against premature corrosion, peeling and chalking for the period stated in the approved submittal.
1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.
1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Steel rods, nuts, washers, turnbuckles and fittings of the specified sizes and corrosion protection.
2.1.2 Corrosion-resistant coating or hot-dip galvanizing as specified.

3. PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Install at the indicated locations and tighten sufficiently to remove slack without distorting purlins.

3.1.2 Provide full thread engagement and lock or secure connections against loosening (double nuts or lock washers).

3.2 REPLACEMENT AND INSPECTION

3.2.1 Replace bent, damaged or incorrectly threaded components.

3.2.2 Re-check tightness after roofing installation and before final acceptance.

END OF SECTION

SECTION 03 70 00 – METAL STRUCTURE ACCESSORIES, STEEL PLATES (Item 1047(8)(a))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 03 20 00 Structural Steel

1.1.7 Section 03 30 00 Structural Steel, Trusses

1.1.8 Section 03 50 00 Metal Structure Accessories, Anchor Bolts

1.2 SUMMARY

This section specifies the supply and installation of steel plates, gussets, stiffeners, splice plates, cleats and other connection plates required by the approved structural details.

1.3 GENERAL PROVISION

1.3.1 Plate grade, thickness, dimensions, weld sizes and bolt patterns shall be as shown on the approved structural drawings.

1.3.2 Do not substitute plate thickness or connection details without written approval of the Structural Engineer of Record.

1.3.3 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.4 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.5 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.6 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.7 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.8 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.9 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Protect exposed steel against corrosion after fabrication and erection.

1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit mill certificates for steel plate and test reports for bolts and welding consumables.

1.5.1.2 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.3 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.4 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit shop drawings for plates, gussets and cleats showing dimensions, hole layouts and weld details.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application

1.5.2.2.2 Manpower, equipment and tools to be used

1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.2.4 Protection of occupied areas and adjacent finishes

1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Structural steel work shall conform to the National Structural Code of the Philippines (NSCP) 2015, AISC 360 (Specification for Structural Steel Buildings) and AWS D1.1/D1.1M (Structural Welding Code – Steel), unless otherwise indicated on the approved drawings.

1.6.2 Welding shall be performed only by welders qualified in accordance with AWS D1.1/D1.1M for the process, position and joint type used. Submit welder qualification records.

1.6.3 Inspect welds visually (AWS D1.1) and, when required by the Engineer, by non-destructive testing (magnetic particle, dye penetrant or ultrasonic) conducted by qualified personnel. Defective welds shall be removed and re-welded at the Contractor's expense.

1.6.4 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.5 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.6 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the structural steel work against defective materials, fabrication, welding and erection, and shall be liable for structural defects for the period prescribed in Section 62 of the IRR of RA 9184.

1.7.2 Protective coating systems shall carry the manufacturer's warranty against premature corrosion, peeling and chalking for the period stated in the approved submittal.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Steel plate of the grade and thickness specified in the structural drawings (ASTM A36/A36M or as indicated), with compatible bolts and welding consumables.

2.1.2 Corrosion-protection coating compatible with the system specified for the main structure.

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3. PART 3 EXECUTION

3.1 FABRICATION

3.1.1 Cut, drill and prepare plates to the approved dimensions.

3.1.2 Remove burrs and provide the specified welds, bolt holes and edge distances.

3.2 INSTALLATION AND PROTECTION

3.2.1 Do not substitute plate thickness or connection details without written approval.

3.2.2 Protect exposed steel against corrosion after fabrication and erection; touch-up damaged coating.

END OF SECTION

DIVISION 04
REPAIR AND MAINTENANCE WORKS

04 00 00	REPAIR AND MAINTENANCE WORKS	
04 10 00	2-inch Cement Screed with Wire Mesh and Hardener (Item 628)	
04 20 00	Waterproofing (Asphalt) (Item 628(1)(a))	
04 30 00	Structural Concrete Injection and Crack Repair (Item 628(2))	
04 40 00	Beam Steel Jacketing (Item 628(3))	

SECTION 04 10 00 — 2-INCH CEMENT SCREED WITH WIRE MESH AND HARDENER (Item 628)

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis
1.1.2 Specifications (Divisions 00 and 01 of this document)
1.1.3 Shop Drawings and Work Methodology Submittals
1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates
1.1.5 Requests for Interpretation / Clarification
1.1.6 Section 04 20 00 Waterproofing (Asphalt)
1.1.7 Section 06 40 00 Gutter/Deck Drain
1.1.8 Section 03 10 00 Removal of Existing Concrete Topping/Structures and Obstructions

1.2 SUMMARY

This section specifies the supply and installation of a nominal 50 mm (2-inch) cement screed with wire mesh and approved surface hardener where shown, including forming the required falls to drainage outlets and protecting the underlying waterproofing.

1.3 GENERAL PROVISION

1.3.1 The screed shall be laid to the falls and levels shown on the drawings. Minimum slope to drains shall be as indicated, and no ponding of water shall be allowed.
1.3.2 Do not place screed over the waterproofing membrane until the membrane has been inspected, tested and accepted in writing by the Engineer.
1.3.3 Coordinate the screed with drain elevations, parapet upturns and movement joints.
1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.
1.3.5 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.
1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.
1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

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1.3.8 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.
1.3.9 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.
1.3.10 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Cure and protect the screed against premature drying, cracking and construction traffic.
1.4.2 Keep drains and drain access clear of screed material and debris.
1.4.3 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.
1.4.4 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS
1.5.1.1 Submit product data for the surface hardener, bonding agent and separation or protection layer, with the waterproofing manufacturer's written approval of the protection layer.
1.5.1.2 Submit the proposed screed mix proportions (cement:sand ratio and water-cement ratio).
1.5.1.3 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.
1.5.1.4 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.
1.5.1.5 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.
1.5.2 EXECUTION APPROVAL ATTACHMENTS
1.5.2.1 Submit a screed layout showing falls, levels, screeding guides, movement joints and pour sequence.
1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:
1.5.2.2.1 Date and time of work, and area of application
1.5.2.2.2 Manpower, equipment and tools to be used
1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity
1.5.2.2.4 Protection of occupied areas and adjacent finishes
1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Concrete, screed and repair work shall conform to NSCP 2015, ACI 318 (Building Code Requirements for Structural Concrete) and ACI 301 (Specifications for Concrete Construction), as applicable, unless otherwise indicated on the approved drawings.
1.6.2 Cement shall conform to PNS ASTM C150 / ASTM C150/C150M (Portland Cement) or PNS 07 for blended cement as approved, and shall be fresh, free of lumps and delivered in sealed, labeled bags.
1.6.3 Aggregates shall conform to ASTM C33/C33M and mixing water shall be clean and potable, free of oil, acids, alkalis and organic matter.
1.6.4 Welded wire mesh shall conform to ASTM A1064/A1064M (or ASTM A185/A185M) of the size shown on the drawings.
1.6.5 Check the finished screed with a 3-meter straightedge; surface deviation shall not exceed the tolerance stated in the drawings or, if not stated, 6 mm in 3 meters.
1.6.6 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.7 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.8 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the screed against cracking beyond hairline width, delamination, dusting and loss of falls, in accordance with Section 62 of the IRR of RA 9184.

1.7.2 Submit the surface-hardener manufacturer's warranty, where available.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 SCREED MATERIALS

2.1.1 Portland cement conforming to applicable PNS/ASTM requirements, clean fine aggregate, and potable-quality mixing water.

2.1.2 Welded wire mesh as specified, supported on approved chairs or spacers to keep it in the mid-depth of the screed.

2.2 ACCESSORIES

2.2.1 Compatible surface hardener or protection layer as specified.

2.2.2 Separation or protection layer required by the membrane manufacturer, and approved edge or movement-joint filler.

3. PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Inspect and accept the waterproofing membrane before screeding.

3.1.2 Provide the protection or separation layer required by the membrane manufacturer.

3.1.3 Install screed guides and set levels to the specified falls.

3.2 PLACING AND FINISHING

3.2.1 Support mesh within the screed at the position shown; it shall not lie directly on the membrane or be exposed at the surface.

3.2.2 Place and finish to the approved levels and drainage slope; do not add excessive water.

3.2.3 Apply the surface hardener in accordance with the manufacturer's instructions.

3.3 CURING AND PROTECTION

3.3.1 Cure and protect against premature drying, cracking and construction traffic; maintain continuous moist curing for at least seven (7) days.

3.3.2 Maintain movement joints and drain access. Repair cracks and defective areas before the next operation.

END OF SECTION

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SECTION 04 20 00 – WATERPROOFING (ASPHALT) (Item 628(1)(a))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 04 10 00 2-inch Cement Screed with Wire Mesh and Hardener

1.1.7 Section 04 30 00 Structural Concrete Injection and Crack Repair

1.1.8 Section 05 10 00 Liquid Waterproofing (Cementitious)

1.1.9 Section 06 40 00 Gutter/Deck Drain

1.1.10 Section 02 30 00 Occupational Safety and Health

1.2 SUMMARY

This section specifies the supply and installation of a torch-applied reinforced bituminous membrane over the prepared roof deck, including primer, laps, upturns, terminations, penetrations and compatible accessories.

1.3 GENERAL PROVISION

1.3.1 The membrane system shall be a complete, watertight assembly. Only trained and, where required by the manufacturer, accredited applicators shall perform the work.

1.3.2 Torch application is hot work. Implement the hot-work permit, fire watch and fire protection measures required by Section 02 30 00 and the Fire Code (RA 9514).

1.3.3 Do not apply the membrane in rain, on damp substrates beyond the manufacturer's limits, or when ambient conditions are outside the manufacturer's limits.

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.8 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.9 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.10 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Protect the membrane from puncture, traffic and spills during subsequent work. Provide plywood or board walkways over the membrane where traffic is expected.

1.4.2 Keep drains free of debris during and after application.

1.4.3 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.4 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit product data, technical data sheets and installation instructions for the primer, membrane, flashing membrane, sealants and termination accessories.

1.5.1.2 Submit test reports showing conformance with ASTM D6222 (APP-modified) or ASTM D6164 (SBS-modified) as applicable, and the membrane thickness.

1.5.1.3 Submit the manufacturer's certificate of applicator approval or experience record.

1.5.1.4 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.5 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.6 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit a detailed application procedure, including substrate preparation, priming, sequence of sheet laying, treatment of laps, upturns, drains and penetrations.

1.5.2.2 Submit the proposed method for the watertightness (flood) test and the permitted water depth, subject to confirmation of the slab load capacity by the Structural Engineer.

1.5.2.3 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.3.1 Date and time of work, and area of application

1.5.2.3.2 Manpower, equipment and tools to be used

1.5.2.3.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.3.4 Protection of occupied areas and adjacent finishes

1.5.2.3.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 The applicator shall have at least five (5) years of experience in torch-applied membranes of similar size and complexity, with a list of at least three (3) completed projects.

1.6.2 Inspect the substrate and accept it in writing before application. Inspect seams, blisters, wrinkles and punctures; repair defects before covering.

1.6.3 Conduct a controlled watertightness test when specified, and only after confirming that the slab can safely carry the test-water load. A satisfactory test is no leakage after a minimum of 24 to 48 hours of ponding or as stated in the Contract.

1.6.4 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.5 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.6 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

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1.7 WARRANTIES

1.7.1 The Contractor and the membrane applicator shall jointly warrant the watertightness of the installed roof waterproofing system for a minimum of ten (10) years, or such longer period as stated in the Contract or the approved manufacturer's warranty.

1.7.2 During the warranty period, the Contractor shall, within a reasonable time after notice, repair leaks and defects at no cost to the Owner, including the removal and replacement of any finishes affected.

1.7.3 The warranty shall also be subject to Section 62 of the IRR of RA 9184.

2. PART 2 PRODUCTS

2.1 MEMBRANE SYSTEM

2.1.1 Factory-manufactured torch-applied bituminous membrane suitable for roof decks, nominal thickness not less than 4.0 mm unless the approved system specifies otherwise, reinforced with polyester or fiberglass mat, with a granule or smooth surface as specified.

2.1.2 Compatible bituminous primer, flashing membrane, sealants and termination accessories (termination bar, mastic, counter-flashing).

2.2 ACCESSORIES

2.2.1 Drain flange clamping rings, fillet and cant materials, and reinforcing strips as recommended by the manufacturer.

2.2.2 Protection board or protective screed as indicated.

3. PART 3 EXECUTION

3.1 SURFACE PREPARATION

3.1.1 Complete concrete repairs and verify substrate soundness, dryness as required by the manufacturer, slope, drain elevations and parapet junctions before application.

3.1.2 Remove dust, oil, laitance and loose particles; install fillets at inside corners and round off sharp edges.

3.1.3 Apply primer uniformly and allow it to dry as specified.

3.2 APPLICATION

3.2.1 Torch-apply membrane with controlled heating and fully sealed side/end laps; avoid scorching the substrate or membrane.

3.2.2 Turn membrane up at vertical surfaces and seal terminations and penetrations in accordance with approved details.

3.2.3 Stagger end laps and keep side laps to the dimensions recommended by the manufacturer.

3.3 SAFETY

3.3.1 Use hot-work permits, fire watch and extinguishers. Keep gas cylinders upright, secured and away from combustible materials. Maintain a fire watch for at least one (1) hour after the torch work is completed.

3.4 TESTING AND PROTECTION

3.4.1 Inspect seams, blisters, wrinkles and punctures; repair defects before covering.

3.4.2 Perform a controlled watertightness test when specified and only after confirming the slab can safely carry the test-water load.

3.4.3 Protect membrane from puncture during subsequent work.

END OF SECTION

SECTION 04 30 00 – STRUCTURAL CONCRETE INJECTION AND CRACK REPAIR (Item 628(2))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis
1.1.2 Specifications (Divisions 00 and 01 of this document)
1.1.3 Shop Drawings and Work Methodology Submittals
1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates
1.1.5 Requests for Interpretation / Clarification
1.1.6 Section 04 20 00 Waterproofing (Asphalt)
1.1.7 Section 04 40 00 Beam Steel Jacketing
1.1.8 Section 03 10 00 Removal of Existing Concrete Topping/Structures and Obstructions

1.2 SUMMARY

This section specifies the inspection, preparation and repair of designated cracks, leakage paths and localized concrete deterioration in the roof deck and structural members, including repairs needed before beam jacketing.

1.3 GENERAL PROVISION

1.3.1 Repairs shall follow ACI 546R (Guide to Concrete Repair), ACI 224.1R (Causes, Evaluation and Repair of Cracks in Concrete Structures) and ICRI guidelines, as applicable, and the instructions of the Structural Engineer of Record.

1.3.2 Do not use rigid epoxy injection to mask active movement or an unresolved structural deficiency; refer such conditions to the Structural Engineer.

1.3.3 Report significant section loss, corrosion of reinforcement or other structural distress to the Engineer before proceeding.

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.8 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.9 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.10 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Protect repaired areas from loading, vibration and moisture during the curing period of the repair materials.

1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

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1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit product data and installation instructions for the epoxy injection resin, polyurethane injection resin, repair mortar, bonding agent and corrosion inhibitor.

1.5.1.2 Submit test reports showing that epoxy conforms to ASTM C881/C881M (Type I, IV or V as applicable) and that repair mortars conform to ASTM C928 or equivalent.

1.5.1.3 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.4 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.5 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit a crack survey and repair plan showing crack locations, widths, depth and evidence of leakage, and the proposed injection and repair procedure for each type of crack.

1.5.2.2 Submit the proposed injection-port spacing and pressure, and the personnel qualifications.

1.5.2.3 Submit a detailed work methodology and work schedule indicating at least the following:

- 1.5.2.3.1 Date and time of work, and area of application
- 1.5.2.3.2 Manpower, equipment and tools to be used
- 1.5.2.3.3 Safety measures, including a job hazard analysis specific to the activity
- 1.5.2.3.4 Protection of occupied areas and adjacent finishes
- 1.5.2.3.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Injection shall be performed by a specialist applicator with at least three (3) years of experience in structural crack repair, trained by the material manufacturer.

1.6.2 Verify effectiveness of injection by coring or other non-destructive means when required by the Engineer, at the Contractor's expense for defective work.

1.6.3 Concrete, screed and repair work shall conform to NSCP 2015, ACI 318 (Building Code Requirements for Structural Concrete) and ACI 301 (Specifications for Concrete Construction), as applicable, unless otherwise indicated on the approved drawings.

1.6.4 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.5 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.6 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the repaired concrete and crack injection against recurrence of leakage and debonding for a minimum of two (2) years, and in accordance with Section 62 of the IRR of RA 9184 for structural defects.

1.7.2 Submit the manufacturers' warranties for injection resins and repair mortars.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 INJECTION MATERIALS

2.1.1 Low-viscosity structural epoxy for dormant cracks requiring structural bonding.

2.1.2 Approved flexible polyurethane or equivalent for active leakage where appropriate.

2.1.3 Surface sealer, injection ports and flushing solvent as recommended by the manufacturer.

2.2 CONCRETE REPAIR MATERIALS

2.2.1 Compatible polymer-modified repair mortar, corrosion inhibitor and bonding system.

2.2.2 Epoxy-coated or zinc-rich primer for exposed reinforcement, where specified.

3. PART 3 EXECUTION

3.1 SURVEY AND PREPARATION

3.1.1 Map cracks and record locations, widths and evidence of leakage.

3.1.2 Clean cracks and install ports/seals using an approved procedure.

3.2 INJECTION

3.2.1 Inject at controlled pressure without damaging the member; inject from the lowest port upward until resin appears at the adjacent port.

3.2.2 Do not use rigid epoxy injection to mask active movement or an unresolved structural deficiency; refer such conditions to the Structural Engineer.

3.3 CONCRETE REPAIR

3.3.1 Remove unsound concrete, clean exposed reinforcement and report significant section loss.

3.3.2 Repair and prepare the substrate; obtain Engineer acceptance before enclosing reinforcement or applying shotcrete.

3.3.3 Cure repair materials in accordance with the manufacturer's instructions.

END OF SECTION

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SECTION 04 40 00 – BEAM STEEL JACKETING (Item 628(3))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 03 10 00 Removal of Existing Concrete Topping/Structures and Obstructions

1.1.7 Section 04 30 00 Structural Concrete Injection and Crack Repair

1.1.8 Section 02 30 00 Occupational Safety and Health

1.2 SUMMARY

This section specifies the strengthening of designated existing reinforced-concrete beams by installing additional deformed steel bars (DSB) and applying shotcrete to form the reinforced-concrete jacket, nominally 100 mm thick unless the approved drawings indicate otherwise.

1.3 GENERAL PROVISION

1.3.1 Jacketing shall follow the approved structural drawings and shall comply with NSCP 2015, ACI 318, ACI 506R (Guide to Shotcrete) and ACI 506.2 (Specification for Shotcrete), and the applicable DPWH Standard Specification (Item 514, Shotcrete).

1.3.2 Provide shoring where required before removing concrete cover. Do not cut existing reinforcement without written approval.

1.3.3 Notify the Engineer of corrosion or section loss of existing bars and do not conceal the work until it has been inspected.

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.8 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.9 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.10 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Cure and protect the shotcrete jacket as specified and keep shoring in place until the jacket has reached the strength approved by the Structural Engineer.

1.4.2 Protect the jacket from impact, vibration and water until it is fully cured.

1.4.3 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.4 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit mill certificates for additional deformed steel bars conforming to PNS 49 / ASTM A615/A615M or A706/A706M of the specified grade, and product data for anchors, dowels, couplers, bonding agents and corrosion-protection materials.

1.5.1.2 Submit a shotcrete mix design with trial-mix test results. In the absence of a different approved design requirement, submit a proposed mix of at least 28 MPa at 28 days for Engineer approval.

1.5.1.3 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.4 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.5 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit shoring design, sequence of concrete removal, anchor/dowel layout, bar schedule and shotcrete application procedure, including the number and thickness of lifts.

1.5.2.2 Submit the shotcrete nozzleman certification (ACI) or equivalent record of experience.

1.5.2.3 Submit a detailed work methodology and work schedule indicating at least the following:

- 1.5.2.3.1 Date and time of work, and area of application
- 1.5.2.3.2 Manpower, equipment and tools to be used
- 1.5.2.3.3 Safety measures, including a job hazard analysis specific to the activity
- 1.5.2.3.4 Protection of occupied areas and adjacent finishes
- 1.5.2.3.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Shotcrete shall be applied by trained personnel; the nozzleman shall be ACI-certified or demonstrate equivalent experience, and shall complete a pre-construction test panel approved by the Engineer.

1.6.2 Take cores or test panels, and conduct thickness and strength verification, as required by the Engineer. Do not cover until accepted.

1.6.3 Have the substrate, anchors and reinforcement inspected and approved by the Engineer before shotcreting.

1.6.4 Concrete, screed and repair work shall conform to NSCP 2015, ACI 318 (Building Code Requirements for Structural Concrete) and ACI 301 (Specifications for Concrete Construction), as applicable, unless otherwise indicated on the approved drawings.

1.6.5 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.6 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.7 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the jacket against delamination, voids, cracking and debonding, and shall be liable for structural defects in accordance with Section 62 of the IRR of RA 9184.

1.7.2 Submit warranties from manufacturers of bonding agents, anchors and repair products.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

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1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 REINFORCEMENT AND ANCHORAGE

2.1.1 Additional DSB conforming to the specified grade and applicable ASTM A615/A615M or A706/A706M requirements.

2.1.2 Approved anchors, dowels and couplers, with adhesive anchoring system where specified.

2.2 SHOTCRETE AND REPAIR MATERIALS

2.2.1 Shotcrete mix with specified strength. In the absence of a different approved design requirement, submit a proposed mix of at least 28 MPa at 28 days for Engineer approval.

2.2.2 Compatible repair and corrosion-protection materials and bonding agents.

3. PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Provide shoring where required before removing concrete cover.

3.1.2 Carefully remove finishes and unsound cover to the approved limits; do not cut existing reinforcement without written approval.

3.1.3 Clean exposed bars and notify the Engineer of corrosion or section loss; repair dormant structural cracks and defective concrete as directed.

3.2 REINFORCEMENT

3.2.1 Roughen and clean the existing concrete interface; install anchors and reinforcement to the approved bar sizes, spacing, laps, development and cover.

3.2.2 Have substrate, anchors and reinforcement inspected before shotcreting.

3.3 SHOTCRETING

3.3.1 Apply shotcrete by trained personnel in controlled layers to fully encapsulate bars without voids. Follow the approved procedure and applicable DPWH Item 514 requirements; multiple lifts may be required for a 100 mm jacket.

3.3.2 Remove rebound and loose material between lifts; do not incorporate rebound into the jacket.

3.4 CURING AND VERIFICATION

3.4.1 Cure and protect for the period specified by the approved system and governing specification; absent a different approved requirement, provide at least seven (7) days of curing.

3.4.2 Repair defects and perform thickness and strength verification required by the Engineer. Do not cover until accepted.

END OF SECTION

DIVISION 05
ARCHITECTURAL WORKS

05 00 00	**ARCHITECTURAL WORKS**	
05 10 00	Liquid Waterproofing (Cementitious) (Item 1016(1)(b))	
05 20 00	Prepainted Metal Sheets (0.50 mm, Rib Type Long Span) Roofing (Item 1014(1)(b2))	
05 30 00	Fabricated Metal Roofing Accessories - Flashing (Endwall and Cap Flashing) (Item 1013(2)(b))	
05 40 00	Fabricated Metal Roofing Accessories - Gutters (Item 1013(2)(c))	
05 50 00	Fascia (12 mm Thick Fiber Cement on Metal Frames) (Item 1003(11)(a1))	
05 60 00	Cement Plaster Finish, 1/2-inch Plain Cement (Item 1027(1))	
05 70 00	Painting Works (Masonry/Concrete) (Item 1032(1)(a))	

SECTION 05 10 00 — LIQUID WATERPROOFING (CEMENTITIOUS) (Item 1016(1)(b))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis
1.1.2 Specifications (Divisions 00 and 01 of this document)
1.1.3 Shop Drawings and Work Methodology Submittals
1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates
1.1.5 Requests for Interpretation / Clarification
1.1.6 Section 04 20 00 Waterproofing (Asphalt)
1.1.7 Section 05 60 00 Cement Plaster Finish, 1/2-inch Plain Cement
1.1.8 Section 05 70 00 Painting Works (Masonry/Concrete)

1.2 SUMMARY

This section specifies the supply and application of cementitious waterproofing to designated vertical concrete/masonry surfaces, parapets and junctions indicated on the plans, coordinated with the roof-deck asphalt membrane.

1.3 GENERAL PROVISION

1.3.1 Waterproofing shall be applied only by an applicator approved or trained by the manufacturer, and only to surfaces prepared and accepted in writing.

1.3.2 Coordinate upturns and terminations with the asphalt membrane so that the two systems form a continuous watertight envelope.

1.3.3 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.4 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.5 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.6 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

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1.3.7 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.8 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.9 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Protect the applied coating from rain, traffic, direct sun and mechanical damage during the curing period.

1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit product data, technical data sheets and application instructions, including coverage rates, mixing ratios, coat thickness, curing and recoat intervals.

1.5.1.2 Submit test reports showing compliance with ASTM C1583 (bond strength) or other relevant tests required by the manufacturer.

1.5.1.3 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.4 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.5 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit the application procedure and the details at corners, penetrations and changes of plane, including termination at the asphalt membrane.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application
1.5.2.2.2 Manpower, equipment and tools to be used
1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity
1.5.2.2.4 Protection of occupied areas and adjacent finishes
1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Applicator shall have at least three (3) years of experience in cementitious waterproofing of similar scope and shall have manufacturer certification.

1.6.2 Inspect each coat for pinholes, voids and uneven coverage, and verify applied thickness by coverage rate or wet-film measurement. Correct defects before the next coat.

1.6.3 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.4 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.5 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 Provide a manufacturer's and applicator's joint warranty against leaks and loss of adhesion for a minimum of five (5) years from date of acceptance, or longer if stated in the approved submittal.

1.7.2 Repair leaks and defects during the warranty period at no cost to the Owner.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 WATERPROOFING MATERIALS

2.1.1 Approved single- or two-component cementitious waterproofing suitable for exterior concrete/masonry.

2.1.2 Compatible bonding agent, primer and acrylic modifier, when required by the manufacturer.

2.2 ACCESSORIES

2.2.1 Compatible sealants, reinforcing mesh, fillet materials and repair mortar.

3. PART 3 EXECUTION

3.1 SURFACE PREPARATION

3.1.1 Remove loose coatings, dust, laitance, oil and unsound material; repair cracks and active leaks before coating.

3.1.2 Prepare and precondition the substrate as required by the product instructions (saturated surface-dry condition where required).

3.2 APPLICATION

3.2.1 Reinforce corners, penetrations and changes of plane where required; apply the specified coats and coverage rates.

3.2.2 Apply coats by brush, roller or trowel at the thickness and interval recommended by the manufacturer.

3.3 CURING AND INTEGRATION

3.3.1 Cure and protect as specified; coordinate upturns and terminations with the asphalt membrane.

3.3.2 Do not apply finishes until the waterproofing has cured for the minimum period stated by the manufacturer.

END OF SECTION

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SECTION 05 20 00 – PREPAINTED METAL SHEETS (0.50 MM, RIB TYPE LONG SPAN) ROOFING (Item 1014(1)(b2))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 03 40 00 Structural Steel, Purlins

1.1.7 Section 05 30 00 Fabricated Metal Roofing Accessories – Flashing

1.1.8 Section 05 40 00 Fabricated Metal Roofing Accessories – Gutters

1.1.9 Section 05 50 00 Fascia (12 mm Thick Fiber Cement on Metal Frames)

1.2 SUMMARY

This section specifies the supply and installation of prepainted rib-type long-span metal roofing sheets on the new roof framing, including fasteners, closures and standard accessories required for a complete weather-tight roof.

1.3 GENERAL PROVISION

1.3.1 Roofing work shall conform to the National Building Code of the Philippines (PD 1096), the roofing manufacturer's installation requirements, and the wind-load provisions of NSCP 2015 for the project location.

1.3.2 The base-metal thickness (BMT) of the sheets shall be as stated in the Bill of Quantities (0.50 mm unless otherwise approved) and shall be verified at delivery.

1.3.3 Verify purlin spacing, roof slope, sheet lengths and prevailing weather exposure before installation.

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.8 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.9 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.10 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Keep sheets dry, off the ground and protected during storage; unwrap and ventilate bundles that become wet.

1.4.2 Remove swarf, drilling chips and debris from the roof surface at the end of each day to prevent rust staining.

1.4.3 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.4 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit manufacturer data identifying base-metal thickness, coating, color, profile and warranty.

1.5.1.2 Submit test certificates for the sheets showing conformance with ASTM A755/A755M (prepainted) and ASTM A653/A653M or A792/A792M (metallic-coated steel) or the equivalent PNS, and for fasteners and sealing washers.

1.5.1.3 Submit color chart and sheet samples (at least 300 mm long, with fasteners) for Owner selection.

1.5.1.4 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.5 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.6 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit a roof layout drawing showing sheet length, laps, fastener pattern, accessories and flashing locations.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application

1.5.2.2.2 Manpower, equipment and tools to be used

1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.2.4 Protection of occupied areas and adjacent finishes

1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Sheets shall be factory-formed and be delivered with the manufacturer's label showing BMT, coating class and color. Sheets that are scratched, dented or below the specified thickness shall be rejected.

1.6.2 Inspect the completed roof for leaks, loose fasteners and damage, and test by water spraying if required by the Engineer.

1.6.3 Roofing work shall conform to the National Building Code of the Philippines (PD 1096), the roofing manufacturer's installation requirements, and the wind-load provisions of NSCP 2015 for the project location.

1.6.4 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.5 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.6 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 Provide the manufacturer's written warranty for the sheets against perforation by corrosion and against paint peeling, cracking and excessive fading for a minimum of ten (10) years, or longer as stated in the approved submittal.

1.7.2 The Contractor shall warrant the installation against leaks and wind damage for a minimum of two (2) years, and be liable under Section 62 of the IRR of RA 9184.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

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2. PART 2 PRODUCTS

2.1 ROOFING SHEETS

2.1.1 Prepainted metal sheets with base-metal thickness and coating system stated in the BOQ and approved submittals (0.50 mm rib-type long span).

2.1.2 Sheets shall be roll-formed in a single length wherever practicable.

2.2 FASTENERS AND ACCESSORIES

2.2.1 Corrosion-resistant self-drilling fasteners with compatible sealing washers.

2.2.2 Closures, sealants, ridge and cap accessories matched to the sheet profile and color.

3. PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Submit manufacturer data identifying base-metal thickness, coating, color, profile and warranty.

3.1.2 Verify purlin spacing, roof slope, sheet lengths and prevailing weather exposure before installation.

3.2 INSTALLATION

3.2.1 Use long sheets to minimize end laps where practicable; side laps and end laps shall follow the approved profile and manufacturer details.

3.2.2 Fasten through the specified crest or pan as required by the profile, without overdriving or crushing washers.

3.2.3 Keep sheets square, aligned and free from scratches, swarf and oil-canning; repair or replace damaged sheets.

3.3 PROTECTION AND INSPECTION

3.3.1 Provide safe temporary weather protection and inspect the completed roof for leaks.

3.3.2 Provide boards or walkways to protect sheets from foot traffic; do not walk on unsupported portions of the sheets.

END OF SECTION

SECTION 05 30 00 — FABRICATED METAL ROOFING ACCESSORIES - FLASHING (ENDWALL AND CAP FLASHING) (Item 1013(2)(b))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 05 20 00 Prepainted Metal Sheets Roofing

1.1.7 Section 05 40 00 Fabricated Metal Roofing Accessories - Gutters

1.1.8 Section 05 10 00 Liquid Waterproofing (Cementitious)

1.2 SUMMARY

This section specifies the fabrication and installation of metal flashing at endwalls, roof-to-wall junctions, ridges/caps and other interfaces shown on the drawings to prevent water ingress.

1.3 GENERAL PROVISION

1.3.1 Roofing work shall conform to the National Building Code of the Philippines (PD 1096), the roofing manufacturer's installation requirements, and the wind-load provisions of NSCP 2015 for the project location.

1.3.2 Flashing shall be made of the same material, color and coating class as the roofing, unless indicated otherwise.

1.3.3 Different metals shall not be in contact in a manner that can cause galvanic corrosion.

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.8 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.9 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.10 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Keep flashing clean and free of scratches; protect prepainted surfaces with film until installation is complete.

1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

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1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit shop drawings and manufacturer's data for flashing profiles, sheet metal thickness, coating, fasteners, sealants and closures.

1.5.1.2 Submit samples of flashing pieces showing hems, returns and seams.

1.5.1.3 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.4 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.5 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit details of endwall, cap and ridge flashing showing laps, upstands, fasteners and sealing.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application

1.5.2.2.2 Manpower, equipment and tools to be used

1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.2.4 Protection of occupied areas and adjacent finishes

1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Flashing shall be fabricated by an experienced sheet-metal worker; seams shall be straight, uniform and free of waviness or cracking.

1.6.2 Inspect all flashing for correct laps, fasteners and sealant before covering.

1.6.3 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.4 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.5 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 Provide a warranty against leaks at flashing, with the same duration as the roofing installation warranty in Section 05 20 00.

1.7.2 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.3 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Prepainted or galvanized sheet metal of the gauge/thickness specified in the BOQ and approved details.

2.1.2 Compatible fasteners, sealant, closures and backing as required.

3. PART 3 EXECUTION

3.1 FABRICATION

3.1.1 Measure on site and fabricate pieces with sufficient laps, hems and returns for the approved detail.

3.1.2 Form bends accurately without cracking the coating.

3.2 INSTALLATION

3.2.1 Install in shingle fashion where applicable and integrate with roofing sheets and wall finishes.

3.2.2 Provide continuous sealed terminations and avoid exposed reverse laps that can direct water into the building.

3.2.3 Do not rely on sealant alone where a mechanical overlap or flashing upstand is required.

END OF SECTION

SECTION 05 40 00 – FABRICATED METAL ROOFING ACCESSORIES - GUTTERS (Item 1013(2)(c))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 05 20 00 Prepainted Metal Sheets Roofing

1.1.7 Section 06 40 00 Gutter/Deck Drain

1.1.8 Section 06 10 00 PVC Pipes, Vertical and Horizontal

1.2 SUMMARY

This section specifies the supply and installation of new roof gutters, including brackets, joints, outlets, end caps and connections to downspouts, sized and located as shown on the approved drainage details.

1.3 GENERAL PROVISION

1.3.1 Roofing work shall conform to the National Building Code of the Philippines (PD 1096), the roofing manufacturer's installation requirements, and the wind-load provisions of NSCP 2015 for the project location.

1.3.2 Gutter size, slope and outlet locations shall be as shown on the approved drainage details and shall be capable of carrying the design rainfall intensity in accordance with the National Plumbing Code of the Philippines.

1.3.3 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.4 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.5 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.6 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.7 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.8 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.9 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Keep gutters free of construction debris and flush clean before turnover.

1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit shop drawings of the gutter profile, brackets, joints, outlets and expansion provisions, with material data for sheet metal and sealants.

1.5.1.2 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.3 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.4 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit the gutter layout showing slope, outlet locations, joint locations and connection to downspouts.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application

1.5.2.2.2 Manpower, equipment and tools to be used

1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.2.4 Protection of occupied areas and adjacent finishes

1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Joints shall be sealed and, where specified, riveted or soldered, so as to be watertight.

1.6.2 Conduct a controlled flow/leak test and correct leaks or standing water.

1.6.3 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.4 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.5 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 Provide a warranty against leaks and corrosion, with the same duration as the roofing installation warranty in Section 05 20 00.

1.7.2 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.3 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Gutter sheet metal thickness/gauge and coating specified in the BOQ.

2.1.2 Compatible brackets, fasteners, sealants and outlet fittings.

3. PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Verify gutter line, fall, outlet location and capacity against the approved drainage layout.

3.1.2 Support gutters at the specified spacing to prevent sagging and ponding.

3.1.3 Seal joints with compatible materials and provide expansion provisions where required.

3.2 CONNECTION AND TESTING

3.2.1 Connect outlets securely to downspouts; conduct a controlled flow/leak test and correct leaks or standing water.

END OF SECTION

SECTION 05 50 00 — FASCIA (12 MM THICK FIBER CEMENT ON METAL FRAMES) (Item 1003(11)(a1))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis
1.1.2 Specifications (Divisions 00 and 01 of this document)
1.1.3 Shop Drawings and Work Methodology Submittals
1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates
1.1.5 Requests for Interpretation / Clarification
1.1.6 Section 05 20 00 Prepainted Metal Sheets Roofing
1.1.7 Section 05 70 00 Painting Works (Masonry/Concrete)
1.1.8 Section 05 40 00 Fabricated Metal Roofing Accessories - Gutters

1.2 SUMMARY

This section specifies the supply and installation of fascia boards and supporting metal framing at the locations shown, including joints, trims, fasteners and finishing.

1.3 GENERAL PROVISION

1.3.1 Fiber cement boards shall be non-asbestos and shall be used in accordance with the manufacturer's instructions for exterior applications.
1.3.2 Provide framing spacing and edge support in accordance with the board manufacturer's instructions.
1.3.3 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.
1.3.4 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.
1.3.5 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.
1.3.6 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.
1.3.7 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.
1.3.8 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.
1.3.9 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Store boards flat, on supports, under cover and protected from moisture; handle carefully to avoid chipping the edges.
1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.
1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

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1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS
1.5.1.1 Submit manufacturer's product data, installation instructions and test reports for fiber cement board conforming to ASTM C1186 (Flat Fiber-Cement Sheets) or ISO 8336.
1.5.1.2 Submit data for metal framing (conforming to ASTM C645 or equivalent) and for screws, jointing compound, sealant, primer and finish.
1.5.1.3 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.
1.5.1.4 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.
1.5.1.5 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.
1.5.2 EXECUTION APPROVAL ATTACHMENTS
1.5.2.1 Submit fascia details showing framing layout, board joints, trims and fastening.
1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:
1.5.2.2.1 Date and time of work, and area of application
1.5.2.2.2 Manpower, equipment and tools to be used
1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity
1.5.2.2.4 Protection of occupied areas and adjacent finishes
1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Boards shall be uniform in thickness (12 mm), free from cracks, chips and delamination.
1.6.2 Verify alignment and the supporting frame before board installation.
1.6.3 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.
1.6.4 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.
1.6.5 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 Provide the manufacturer's written warranty for the board for a minimum of ten (10) years against rotting, cracking and loss of structural integrity, or as stated in the approved submittal.
1.7.2 The Contractor shall warrant the installation and finish for a minimum of two (2) years.
1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.
1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 12 mm fiber-cement board and metal framing members of the sizes specified in approved details.
2.1.2 Corrosion-resistant screws, jointing materials, primer and exterior-grade finish.

3. PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Verify alignment and supporting frame before board installation.

3.1.2 Provide framing spacing and edge support in accordance with the board manufacturer's instructions.

3.1.3 Seal cut edges and joints with compatible materials; keep board clear of persistent water exposure.

3.2 FINISHING

3.2.1 Finish joints and paint/coating system to achieve a uniform exterior appearance.

3.2.2 Remove dust and loose material before applying primer and topcoat.

END OF SECTION

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SECTION 05 60 00 – CEMENT PLASTER FINISH, 1/2-INCH PLAIN CEMENT (Item 1027(1))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 05 70 00 Painting Works (Masonry/Concrete)

1.1.7 Section 05 10 00 Liquid Waterproofing (Cementitious)

1.2 SUMMARY

This section specifies a nominal 12 mm (1/2-inch) plain cement plaster finish to designated masonry or concrete surfaces, including surface preparation, corner beads where specified and curing.

1.3 GENERAL PROVISION

1.3.1 Cement plaster shall conform to ASTM C926 (Application of Portland Cement-Based Plaster) and to the thickness, mix and finish stated on the drawings.

1.3.2 Do not plaster over surfaces that are not sound or are contaminated with oil or efflorescence. Prepare all surfaces before application.

1.3.3 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.4 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.5 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.6 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.7 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.8 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.9 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Protect fresh plaster from rain, direct sun, wind and mechanical damage; maintain moist curing.

1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit product data for cement, bonding agents and any admixtures used.

1.5.1.2 Submit the proposed mix proportions and a sample panel of the specified finish.

1.5.1.3 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.4 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.5 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit a plastering sequence and curing procedure, and show the location of control joints, corner beads and screeds.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application

1.5.2.2.2 Manpower, equipment and tools to be used

1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.2.4 Protection of occupied areas and adjacent finishes

1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Cement shall conform to PNS ASTM C150; sand shall be clean, sharp, river or washed sand free of silt and organic matter, conforming to ASTM C144 (Aggregate for Masonry Mortar).

1.6.2 Construct a mock-up panel (approx. 1 sq.m) for the Engineer's approval before work proceeds. The approved panel shall be the standard for texture and finish.

1.6.3 Check plaster surface with a 3-meter straightedge; deviation shall not exceed 6 mm in 3 meters, unless otherwise indicated.

1.6.4 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.5 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.6 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the plaster against cracking, debonding, hollow-sounding areas and efflorescence for a minimum of one (1) year from acceptance, and be liable under Section 62 of the IRR of RA 9184.

1.7.2 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.3 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Cement conforming to applicable standards, clean sand, clean water and approved bonding/preparation materials.

2.1.2 Corner beads, plastering screeds and control-joint accessories as specified.

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3. PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Remove loose plaster, dust, oil and unsound substrate; roughen smooth concrete as required.

3.1.2 Dampen substrate or apply approved bonding treatment as appropriate.

3.2 APPLICATION

3.2.1 Apply uniformly to the specified thickness, plumb and true, and finish to the required texture.

3.2.2 Install corner beads and control joints at the locations shown.

3.3 CURING AND REPAIR

3.3.1 Cure adequately by keeping the surface damp for at least three (3) days.

3.3.2 Repair cracks, debonded areas and uneven surfaces before painting.

END OF SECTION

SECTION 05 70 00 – PAINTING WORKS (MASONRY/CONCRETE) (Item 1032(1)(a))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 05 60 00 Cement Plaster Finish, 1/2-inch Plain Cement

1.1.7 Section 05 50 00 Fascia (12 mm Thick Fiber Cement on Metal Frames)

1.1.8 Section 05 10 00 Liquid Waterproofing (Cementitious)

1.2 SUMMARY

This section specifies the preparation and painting of designated masonry and concrete surfaces, including fascia-related surfaces and areas disturbed by the work, with the specified exterior coating system.

1.3 GENERAL PROVISION

1.3.1 Paints shall be lead-free, in compliance with DENR Administrative Order No. 2013-24 (Chemical Control Order for Lead and Lead Compounds) and shall have low volatile organic compound content where available.

1.3.2 Color, finish and brand shall be approved by the Owner before painting starts.

1.3.3 Do not paint in rain, high humidity, or when surfaces are damp or the surface or air temperature is outside the manufacturer's limits.

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.8 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.9 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.10 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Provide spare paint, equal to approximately one (1) liter per ten (10) liters used for each color and finish, delivered to the Owner in sealed, labeled containers.

1.4.2 Protect finished surfaces from damage until turnover, and touch up as required.

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1.4.3 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.4 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit manufacturer's product data, technical data sheets and Safety Data Sheets for primer, putty, sealer and topcoat, including coverage rates and recoat intervals.

1.5.1.2 Submit color samples (drawdown or brush-out, at least 200 mm × 300 mm) for the Owner's approval.

1.5.1.3 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.4 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.5 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit the painting schedule listing each surface, the coating system, the number of coats and the finish.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application

1.5.2.2.2 Manpower, equipment and tools to be used

1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.2.4 Protection of occupied areas and adjacent finishes

1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Use only products of a single manufacturer for each coating system, and deliver them in original sealed containers with the label intact.

1.6.2 Apply a mock-up on a 1 sq.m area of each color and finish for approval before general application.

1.6.3 Inspect each coat for uniform color, coverage, sheen and adhesion before the next coat; re-paint defective areas.

1.6.4 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.5 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.6 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 Provide the manufacturer's warranty against peeling, blistering, cracking and excessive fading or chalking for a minimum of five (5) years, or as stated in the approved submittal.

1.7.2 The Contractor shall warrant the workmanship for a minimum of one (1) year.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 COATING SYSTEM

2.1.1 Compatible masonry primer/sealer, putty or patching compound, and exterior-grade topcoat of the color and finish approved by the Owner.

2.1.2 Elastomeric or acrylic coating where specified for crack-bridging.

2.2 ACCESSORIES

2.2.1 Masking tape, drop cloths and protective coverings for adjacent surfaces.

3. PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Allow new plaster and concrete to cure and dry to the coating manufacturer's limits (typically at least twenty-eight (28) days for cement plaster).

3.1.2 Remove dust, efflorescence, loose paint and contaminants; repair surface defects.

3.2 APPLICATION

3.2.1 Apply primer and the specified number of topcoats at the recommended coverage and recoat intervals.

3.2.2 Apply paint evenly by brush, roller or spray, without runs, sags or holidays.

3.3 PROTECTION AND INSPECTION

3.3.1 Protect adjacent finishes and verify uniform color, coverage and adhesion.

3.3.2 Clean up spills and remove masking immediately after painting.

END OF SECTION

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DIVISION 06
PLUMBING WORKS

06 00 00	PLUMBING WORKS	
06 10 00	PVC Pipes, Vertical and Horizontal (Item 1001(1)(a)5)	
06 20 00	Polyvinyl Chloride (PVC) Fittings, Series 1000 (Item 1001(10))	
06 30 00	3/4-inch Overhead Tank PVC Pipes Replacement (Item 1001(11))	
06 40 00	Gutter/Deck Drain (Item 1017(3))	
06 50 00	Catch Basin (Item 1001(5))	

SECTION 06 10 00 – PVC PIPES, VERTICAL AND HORIZONTAL (Item 1001(1)(a)5)

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 06 20 00 Polyvinyl Chloride (PVC) Fittings, Series 1000

1.1.7 Section 06 40 00 Gutter/Deck Drain

1.1.8 Section 06 50 00 Catch Basin

1.1.9 Section 05 40 00 Fabricated Metal Roofing Accessories - Gutters

1.2 SUMMARY

This section specifies the supply and installation of PVC pipework for the designated roof drainage and related vertical/horizontal runs as indicated on the plans, including cutting, jointing, supports and connections.

1.3 GENERAL PROVISION

1.3.1 Plumbing work shall conform to the Revised National Plumbing Code of the Philippines (Republic Act No. 1378 and its 1999 Revised Implementing Rules and Regulations), the National Building Code (PD 1096) and applicable local ordinances, and shall be performed under the supervision of a licensed Master Plumber/Sanitary Engineer as required by law.

1.3.2 Verify pipe sizes, routes, gradients and connection points before installation.

1.3.3 Pipe sizes and gradients shall not be less than those shown on the drawings and required by the Plumbing Code.

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.8 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.9 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.10 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Protect pipes from impact, sunlight (UV exposure), heat and solvents during storage and after installation. Store pipes on flat supports, with the full length supported.

1.4.2 Keep pipe openings capped during construction to keep out debris.

1.4.3 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.4 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit manufacturer's data for pipes, fittings, solvent cement, clamps and supports, including the pressure/class rating and the applicable PNS/ASTM standard.

1.5.1.2 Submit samples of each pipe size and type, if requested by the Engineer.

1.5.1.3 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.4 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.5 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit a piping layout (shop drawing) showing routes, sizes, gradients, supports, cleanouts and connection points.

1.5.2.2 Submit the proposed method of testing and the test schedule.

1.5.2.3 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.3.1 Date and time of work, and area of application

1.5.2.3.2 Manpower, equipment and tools to be used

1.5.2.3.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.3.4 Protection of occupied areas and adjacent finishes

1.5.2.3.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Plumbing work shall conform to the Revised National Plumbing Code of the Philippines (Republic Act No. 1378 and its 1999 Revised Implementing Rules and Regulations), the National Building Code (PD 1096) and applicable local ordinances, and shall be performed under the supervision of a licensed Master Plumber/Sanitary Engineer as required by law.

1.6.2 All plumbing materials shall be new, of the type and class specified, and shall bear the manufacturer's marking. PVC pipes and fittings shall conform to applicable Philippine National Standards (PNS) and ASTM D1785, D2665, D3034 or D2241, as appropriate to the service.

1.6.3 Test the completed system for leakage and free flow before concealment, and obtain the Engineer's written acceptance of the test results.

1.6.4 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

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1.6.5 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.6 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the plumbing installation against leaks, blockage and defective materials or workmanship for a minimum of one (1) year from final acceptance, and shall be liable under Section 62 of the IRR of RA 9184.

1.7.2 Submit the manufacturers' warranties for pipes, fittings, valves and drain products.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 PIPES

2.1.1 PVC pipes of the specified type, pressure/class, diameter and standard.

2.1.2 Pipes shall be straight, with uniform wall thickness, and free from cracks, dents and other defects.

2.2 FITTINGS AND SUPPORTS

2.2.1 Compatible fittings, solvent cement or jointing system, clamps and supports.

2.2.2 Solvent cement and primer conforming to ASTM D2564 and ASTM F656, respectively.

3. PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Verify pipe sizes, routes, gradients and connection points before installation.

3.1.2 Check for clashes with structural members, roofing and other services.

3.2 INSTALLATION

3.2.1 Cut square, deburr and clean pipe ends; make joints using the manufacturer's approved procedure.

3.2.2 Provide supports and allowances for thermal movement; protect pipes from impact and UV exposure where required.

3.2.3 Maintain access for cleaning and do not reduce pipe diameter at fittings.

3.3 TESTING

3.3.1 Test the completed system for leakage and free flow before concealment. Water-test drainage pipes by filling to the highest point of the system for at least fifteen (15) minutes without leakage, or as required by the Plumbing Code.

3.3.2 Repair leaks and retest until the system is accepted.

END OF SECTION

SECTION 06 20 00 – POLYVINYL CHLORIDE (PVC) FITTINGS, SERIES 1000 (Item 1001(10))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 06 10 00 PVC Pipes, Vertical and Horizontal

1.1.7 Section 06 30 00 3/4-inch Overhead Tank PVC Pipes Replacement

1.1.8 Section 06 40 00 Gutter/Deck Drain

1.2 SUMMARY

This section specifies the supply and installation of the PVC fittings required for the pipe system, including elbows, tees, reducers, bends, couplings, cleanouts and adapters shown on the plans.

1.3 GENERAL PROVISION

1.3.1 Plumbing work shall conform to the Revised National Plumbing Code of the Philippines (Republic Act No. 1378 and its 1999 Revised Implementing Rules and Regulations), the National Building Code (PD 1096) and applicable local ordinances, and shall be performed under the supervision of a licensed Master Plumber/Sanitary Engineer as required by law.

1.3.2 Fittings shall be of the same manufacturer, material, class and jointing system as the pipes to which they are connected, unless otherwise approved.

1.3.3 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.4 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.5 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.6 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.7 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.8 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.9 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Store fittings in original packaging, protected from sunlight and heat, and keep them free of dust and contamination.

1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

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1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit manufacturer's data for each type of fitting, including the dimensions, pressure/class and applicable standard (ASTM D2466 / D2467 / D3311 or the PNS equivalent).

1.5.1.2 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.3 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.4 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit the fitting schedule or layout showing the location of cleanouts, changes of direction and branch connections.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application

1.5.2.2.2 Manpower, equipment and tools to be used

1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.2.4 Protection of occupied areas and adjacent finishes

1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Plumbing work shall conform to the Revised National Plumbing Code of the Philippines (Republic Act No. 1378 and its 1999 Revised Implementing Rules and Regulations), the National Building Code (PD 1096) and applicable local ordinances, and shall be performed under the supervision of a licensed Master Plumber/Sanitary Engineer as required by law.

1.6.2 All plumbing materials shall be new, of the type and class specified, and shall bear the manufacturer's marking. PVC pipes and fittings shall conform to applicable Philippine National Standards (PNS) and ASTM D1785, D2665, D3034 or D2241, as appropriate to the service.

1.6.3 Test the completed system for leakage and free flow before concealment, and obtain the Engineer's written acceptance of the test results.

1.6.4 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.5 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.6 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the plumbing installation against leaks, blockage and defective materials or workmanship for a minimum of one (1) year from final acceptance, and shall be liable under Section 62 of the IRR of RA 9184.

1.7.2 Submit the manufacturers' warranties for pipes, fittings, valves and drain products.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Fittings compatible with the specified pipe material, diameter, pressure/class and jointing system.

2.1.2 Fittings shall be free from cracks, deformities and flash, with socket depths and tolerances conforming to the standard.

3. PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Use only compatible fittings from an approved product system.

3.1.2 Install fittings in the correct flow direction and orientation; provide cleanouts at locations shown or required for maintenance.

3.1.3 Do not heat or deform fittings unless expressly permitted by the manufacturer.

3.2 INSPECTION AND TESTING

3.2.1 Inspect joints and test the assembled system before acceptance.

3.2.2 Replace any fitting that shows cracks, distortion or leakage.

END OF SECTION

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SECTION 06 30 00 – 3/4-INCH OVERHEAD TANK PVC PIPES REPLACEMENT (Item 1001(11))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 06 10 00 PVC Pipes, Vertical and Horizontal

1.1.7 Section 06 20 00 Polyvinyl Chloride (PVC) Fittings, Series 1000

1.2 SUMMARY

This section specifies the removal and replacement of the designated 3/4-inch (19 mm) PVC piping associated with the overhead tanks, including fittings, valves, supports and reconnections identified in the plans.

1.3 GENERAL PROVISION

1.3.1 Plumbing work shall conform to the Revised National Plumbing Code of the Philippines (Republic Act No. 1378 and its 1999 Revised Implementing Rules and Regulations), the National Building Code (PD 1096) and applicable local ordinances, and shall be performed under the supervision of a licensed Master Plumber/Sanitary Engineer as required by law.

1.3.2 Coordinate with the building administrator for the schedule and duration of water interruption. Schedule the work to minimize disruption to building operations.

1.3.3 Pipes, fittings and valves in contact with potable water shall be certified safe for potable water (PNS, NSF/ANSI 61 or equivalent) and shall be compliant with the Philippine National Standards for Drinking Water (PNSDW) of the Department of Health.

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.8 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.9 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.10 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Disinfect and flush the new line before returning it to service.

1.4.2 Keep the work area dry and protect finishes from water release during the work.

1.4.3 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.4 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit manufacturer's data and potable-water certification for pipes, fittings, valves, unions, clamps and sealants.

1.5.1.2 Submit pressure rating and applicable PNS/ASTM standard for the 3/4-inch pipe.

1.5.1.3 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.4 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.5 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit the shutdown plan, the sequence of removal and replacement, and the disinfection and flushing procedure.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application

1.5.2.2.2 Manpower, equipment and tools to be used

1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.2.4 Protection of occupied areas and adjacent finishes

1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Plumbing work shall conform to the Revised National Plumbing Code of the Philippines (Republic Act No. 1378 and its 1999 Revised Implementing Rules and Regulations), the National Building Code (PD 1096) and applicable local ordinances, and shall be performed under the supervision of a licensed Master Plumber/Sanitary Engineer as required by law.

1.6.2 All plumbing materials shall be new, of the type and class specified, and shall bear the manufacturer's marking. PVC pipes and fittings shall conform to applicable Philippine National Standards (PNS) and ASTM D1785, D2665, D3034 or D2241, as appropriate to the service.

1.6.3 Test the completed system for leakage and free flow before concealment, and obtain the Engineer's written acceptance of the test results.

1.6.4 The completed line shall be pressure-tested at one and one-half (1.5) times the working pressure, or at least 700 kPa, whichever is higher, for at least two (2) hours without loss of pressure, or as required by the Plumbing Code.

1.6.5 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.6 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.7 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the plumbing installation against leaks, blockage and defective materials or workmanship for a minimum of one (1) year from final acceptance, and shall be liable under Section 62 of the IRR of RA 9184.

1.7.2 Submit the manufacturers' warranties for pipes, fittings, valves and drain products.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

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1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 3/4-inch PVC pipe and fittings of the class/type specified for the service, rated for the working pressure.

2.1.2 Compatible valves, unions, clamps and sealants (e.g., PTFE tape).

3. PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Isolate the affected water supply and drain the pipework before removal.

3.1.2 Protect the tank, supports, finishes and occupied spaces from damage and water release.

3.2 INSTALLATION

3.2.1 Install pipes with adequate support and accessible unions/valves; do not impose loads on tank outlets.

3.2.2 Make threaded or solvent-welded joints as recommended by the manufacturer; avoid excess sealant and cement inside the pipe.

3.3 TESTING AND RECOMMISSIONING

3.3.1 Flush the line and test for leakage and satisfactory operation before returning it to service.

3.3.2 Disinfect the line with chlorinated water as required by the DOH, and flush until the residual chlorine is acceptable.

END OF SECTION

SECTION 06 40 00 – GUTTER/DECK DRAIN (Item 1017(3))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis
1.1.2 Specifications (Divisions 00 and 01 of this document)
1.1.3 Shop Drawings and Work Methodology Submittals
1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates
1.1.5 Requests for Interpretation / Clarification
1.1.6 Section 04 20 00 Waterproofing (Asphalt)
1.1.7 Section 04 10 00 2-inch Cement Screed with Wire Mesh and Hardener
1.1.8 Section 05 40 00 Fabricated Metal Roofing Accessories - Gutters
1.1.9 Section 06 10 00 PVC Pipes, Vertical and Horizontal

1.2 SUMMARY

This section specifies the supply and installation, or replacement, of roof-deck and gutter drain outlets, strainers, grates, connectors and interfaces to the downspout system as shown.

1.3 GENERAL PROVISION

1.3.1 Plumbing work shall conform to the Revised National Plumbing Code of the Philippines (Republic Act No. 1378 and its 1999 Revised Implementing Rules and Regulations), the National Building Code (PD 1096) and applicable local ordinances, and shall be performed under the supervision of a licensed Master Plumber/Sanitary Engineer as required by law.

1.3.2 Drain outlets shall be sized and located as shown on the approved drawings and shall be capable of carrying the design rainfall intensity.

1.3.3 Drain flanges shall be compatible with the roof membrane and shall provide a watertight seal.

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.8 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.9 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.10 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Keep drains and strainers free of construction debris during the works and clean them before turnover.

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1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit manufacturer's data for drain bodies, strainers, grates, clamping rings and waterproofing accessories, indicating the material and load rating.

1.5.1.2 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.3 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.4 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit drain locations and details showing invert elevations, flange details, connection to downspouts and tie-in to the waterproofing.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

- 1.5.2.2.1 Date and time of work, and area of application
- 1.5.2.2.2 Manpower, equipment and tools to be used
- 1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity
- 1.5.2.2.4 Protection of occupied areas and adjacent finishes
- 1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Plumbing work shall conform to the Revised National Plumbing Code of the Philippines (Republic Act No. 1378 and its 1999 Revised Implementing Rules and Regulations), the National Building Code (PD 1096) and applicable local ordinances, and shall be performed under the supervision of a licensed Master Plumber/Sanitary Engineer as required by law.

1.6.2 All plumbing materials shall be new, of the type and class specified, and shall bear the manufacturer's marking. PVC pipes and fittings shall conform to applicable Philippine National Standards (PNS) and ASTM D1785, D2665, D3034 or D2241, as appropriate to the service.

1.6.3 Test the completed system for leakage and free flow before concealment, and obtain the Engineer's written acceptance of the test results.

1.6.4 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.5 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.6 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the plumbing installation against leaks, blockage and defective materials or workmanship for a minimum of one (1) year from final acceptance, and shall be liable under Section 62 of the IRR of RA 9184.

1.7.2 Submit the manufacturers' warranties for pipes, fittings, valves and drain products.

1.7.3 Submit the Contractor's warranty that the drainage assemblies will not leak at the membrane interface for the roofing waterproofing warranty period.

2. PART 2 PRODUCTS

2.1 DRAINS

2.1.1 Drain bodies and strainers compatible with the roof membrane and gutter material.

2.1.2 Corrosion-resistant grates, clamps and compatible waterproofing accessories.

3. PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Coordinate drain invert elevations with the finished roof slope and screed.

3.1.2 Ensure the waterproofing membrane is securely dressed and sealed into the drain flange or approved clamping arrangement.

3.1.3 Provide removable strainers and access for cleaning.

3.2 TESTING

3.2.1 Conduct a controlled flow test and verify no leakage, blockage or unacceptable ponding.

3.2.2 Correct defects and retest until accepted.

END OF SECTION

SECTION 06 50 00 – CATCH BASIN (Item 1001(5))

1. PART 1 GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Technical Drawings, Program of Works / Bill of Quantities and Detailed Unit Price Analysis

1.1.2 Specifications (Divisions 00 and 01 of this document)

1.1.3 Shop Drawings and Work Methodology Submittals

1.1.4 Product Samples, Manufacturer's Data Sheets and Certificates

1.1.5 Requests for Interpretation / Clarification

1.1.6 Section 06 10 00 PVC Pipes, Vertical and Horizontal

1.1.7 Section 05 40 00 Fabricated Metal Roofing Accessories – Gutters

1.1.8 Section 06 40 00 Gutter/Deck Drain

1.2 SUMMARY

This section specifies the construction or replacement of catch basins at the locations shown to receive roof/downspout discharge and convey it to the designated stormwater drainage system.

1.3 GENERAL PROVISION

1.3.1 Plumbing work shall conform to the Revised National Plumbing Code of the Philippines (Republic Act No. 1378 and its 1999 Revised Implementing Rules and Regulations), the National Building Code (PD 1096) and applicable local ordinances, and shall be performed under the supervision of a licensed Master Plumber/Sanitary Engineer as required by law.

1.3.2 Catch basin dimensions, levels, inlet and outlet inverts shall be as shown on the approved drawings.

1.3.3 Excavation shall be carried out in a manner that protects nearby foundations, utilities and pedestrian and vehicular access. Provide shoring or barricades where necessary.

1.3.4 Verify all indications on the technical drawings, Program of Works and actual site conditions before starting work. Issue a Request for Clarification to the Engineer/Architect of Record in case of conflicting or missing indications. Do not proceed with the affected work until a written response is received.

1.3.5 Do not modify materials, dimensions, details or sequence of work as indicated in the drawings. If modifications are necessary because of actual site conditions, submit shop drawings and annotate the reasons for modification, highlighting the affected portions with drawing clouds. Any modification found on site without written approval is subject to re-work at the expense of the Contractor.

1.3.6 Comply with Presidential Decree No. 1096 (National Building Code of the Philippines) and its Revised Implementing Rules and Regulations, the National Structural Code of the Philippines (NSCP) 2015, Republic Act No. 9514 (Revised Fire Code of the Philippines) and applicable local ordinances. If a local standard is more stringent than, or conflicts with, the drawings, submit a Request for Clarification citing the code or cause of conflict.

1.3.7 Implement the work in compliance with Republic Act No. 11058 and DOLE Department Order No. 198, Series of 2018 (Occupational Safety and Health Standards), DOLE Department Order No. 13, Series of 1998 (Guidelines Governing Occupational Safety and Health in the Construction Industry), and the approved Construction Safety and Health Program (CSHP) of the project.

1.3.8 The building remains in use during the works. Protect occupied areas, furnishings, equipment and finishes from dust, water, debris, noise and damage. Coordinate work schedules with the building administrator and maintain safe egress and access at all times.

1.3.9 Collect, haul and dispose of all debris, packaging and waste lawfully, in accordance with Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) and DENR requirements. Burning of waste on site is prohibited.

1.3.10 Product substitution shall be allowed only through the procedures of Section 01 25 13 Product Substitution Procedures of this document. Substitutes must be equal or better in quality, performance and durability, and shall be subject to written approval before ordering.

1.4 MAINTENANCE

1.4.1 Keep the catch basin free of debris, silt and construction waste until turnover and clean the sump before acceptance.

1.4.2 Keep the work area clean, safe and orderly at all times. Protect completed work from damage by subsequent trades, weather and traffic until final turnover.

1.4.3 Repair or replace, at the Contractor's expense, any portion of the work damaged before final acceptance and restore adjacent finishes to their original condition.

1.5 SUBMITTALS

1.5.1 PRODUCT APPROVAL ATTACHMENTS

1.5.1.1 Submit data for cover/grating, precast units (if used), pipes, mortar and concrete materials.

1.5.1.2 Submit the concrete mix design and test reports for the compressive strength of concrete.

1.5.1.3 Submit manufacturer's product data, technical data sheets and installation instructions for all materials and products proposed for use, together with Safety Data Sheets (SDS) for materials containing hazardous substances.

1.5.1.4 Submit mill certificates, certificates of compliance and/or test reports from an independent, qualified testing laboratory showing conformance of the materials to the specified PNS and/or ASTM standards.

1.5.1.5 Submit physical samples when requested by the Engineer. Label each sample with the project name, item number, manufacturer and area of application. Approved samples shall serve as the standard of acceptance for delivered materials.

1.5.2 EXECUTION APPROVAL ATTACHMENTS

1.5.2.1 Submit shop drawings of the catch basin showing dimensions, reinforcement, inverts, cover and connection details.

1.5.2.2 Submit a detailed work methodology and work schedule indicating at least the following:

1.5.2.2.1 Date and time of work, and area of application

1.5.2.2.2 Manpower, equipment and tools to be used

1.5.2.2.3 Safety measures, including a job hazard analysis specific to the activity

1.5.2.2.4 Protection of occupied areas and adjacent finishes

1.5.2.2.5 Restoration and cleaning procedures upon completion of work

1.6 QUALITY ASSURANCE

1.6.1 Plumbing work shall conform to the Revised National Plumbing Code of the Philippines (Republic Act No. 1378 and its 1999 Revised Implementing Rules and Regulations), the National Building Code (PD 1096) and applicable local ordinances, and shall be performed under the supervision of a licensed Master Plumber/Sanitary Engineer as required by law.

1.6.2 All plumbing materials shall be new, of the type and class specified, and shall bear the manufacturer's marking. PVC pipes and fittings shall conform to applicable Philippine National Standards (PNS) and ASTM D1785, D2665, D3034 or D2241, as appropriate to the service.

1.6.3 Test the completed system for leakage and free flow before concealment, and obtain the Engineer's written acceptance of the test results.

1.6.4 Concrete shall have a minimum compressive strength of 20.7 MPa (3,000 psi) at 28 days, unless otherwise indicated; concrete hollow blocks, if used, shall conform to the applicable PNS or ASTM C90.

1.6.5 Backfill shall be placed in layers and compacted to at least 95% of the maximum dry density (AASHTO T 180) or as directed by the Engineer.

1.6.6 Employ only skilled workers and foremen with demonstrated experience in work similar to that specified in this Section.

1.6.7 Conduct the inspections and tests required by this Section. Notify the Engineer at least forty-eight (48) hours before concealing or covering any work for inspection. Do not conceal work before it has been inspected and approved in writing.

1.6.8 Correct or replace non-conforming work at the Contractor's expense and without extension of contract time.

1.7 WARRANTIES

1.7.1 The Contractor shall warrant the plumbing installation against leaks, blockage and defective materials or workmanship for a minimum of one (1) year from final acceptance, and shall be liable under Section 62 of the IRR of RA 9184.

1.7.2 Submit the manufacturers' warranties for pipes, fittings, valves and drain products.

1.7.3 The Contractor shall be responsible for the work of this Section under Section 62 (Warranty) of the Implementing Rules and Regulations of Republic Act No. 9184, including liability for structural defects for the period prescribed therein for the classification of the structure, and for defects and deficiencies discovered during the defects liability period.

1.7.4 Submit the manufacturers' written warranties, issued in the name of the Owner, for products that carry warranties. Warranty periods shall not be less than those stated in this Section or in the approved submittal, whichever is longer.

2. PART 2 PRODUCTS

2.1 CONSTRUCTION MATERIALS

2.1.1 Concrete or masonry basin construction, mortar and other materials specified in the approved details.

2.1.2 Cover/grating of the load class suitable for the location, inlet/outlet pipes and sealing materials.

3. PART 3 EXECUTION

3.1 EXCAVATION AND BASE

3.1.1 Excavate to the required dimensions while protecting nearby foundations and utilities.

3.1.2 Prepare a stable base; construct the basin to the approved dimensions, levels and outlet invert.

3.2 CONSTRUCTION

3.2.1 Provide a removable, traffic-appropriate cover or grate as indicated.

3.2.2 Seal pipe penetrations and ensure positive drainage without sediment traps beyond the design.

3.3 BACKFILL AND TESTING

3.3.1 Backfill and compact in layers; flush and test the drainage route before acceptance.

3.3.2 Remove excess soil and debris and restore the surface to its original condition.

END OF SECTION

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