

I. PROJECT DESCRIPTION:

A. PROJECT TITLE:

DESIGN AND BUILD IMPLEMENTATION OF ONE-STOREY MOLECULAR LABORATORY INTENDED FOR COVID 19 TESTING COMPLIANT TO THE REFERENCE PLAN SET BY THE DEPARTMENT OF HEALTH.

B. PURPOSE:

The current pandemic, Coronavirus Disease 2019 (COVID-19), has focused the attention on the scarcity of capable testing facilities. Local data, as of April 1, 2020, showed that there are 227 additional new confirmed cases with positive test results, bringing the number to 2,311 infected cases in the country, with 50 individuals recovering from the disease and 96 deaths reported.

The standard testing procedure for detecting Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the causative agent of COVID-19, is the Real Time Reverse Transcriptase — Polymerase Chain Reaction (rRT-PCR) as recommended by the World Health Organization (WHO). Its sensitivity to detect the presence of the virus early will result in the immediate enforcement of precautionary measures, thus curbing the further transmission of the disease. It is a highly delicate process involving several steps to detect RNA viruses. As such, handling of specimens requires strict adherence to biosafety and biosafety guidelines by the World Health Organization (WHO).

As a strategy to expand testing capacity, to have more capable laboratories, and at the same time ensuring that quality and safety are maintained the DOH issued guidelines to set standards in licensing COVID-19 testing laboratories.

The Cagayan Valley Center for Health Development (CVCHD) and Cagayan Valley Medical Center (CVMC) are the only accredited testing laboratories in Region 2. Region 2 Trauma and Medical Center (R2TMC) currently sends its specimen for testing of COVID-19 at CVCHD.

With the recent statistics for the first two (2) weeks of September 2020, Nueva Vizcaya plotted the highest cases of COVID-19 morbidity and mortality making it the epicenter of the pandemic for Region 2.

With these, there is a challenge for the hospital on how to cope with the sudden surge of confirmed cases and must identify measures to ensure that the health system will capably respond to this emergency to reduce the number of serious and critically ill cases and fatalities while maintaining essential and other routine health services which led R2TMC to set up a molecular laboratory to address the demand for more testing and as one way to mitigate the spread of the pandemic.

C. OBJECTIVES:

1. To build a Molecular Laboratory facility ensuring structural stability, quality, cost effectivity and schedule adherence.
2. To comply with the licensing and accreditation requirements of the DOH and Research Institute for Tropical Medicine (RITM) in the performance of COVID-19 testing in the Philippines.
3. To ensure unidirectional airflow with controlled pressures within the facility to ensure high standard safety when working with the deadly virus.

D. LIMITATIONS AND CONSTRAINTS:

1. The procuring entity through the Design and Build Committee can only provide the conceptual design, performance specifications and parameters on the different components and safety features of the Molecular Laboratory.
2. The evaluation and acceptance of the said project will be based on the technical proposals of the winning bidder in accordance with the criteria set in the bidding documents approved by the Technical Working Group (TWG) and the End-users.
3. Any liability in the design, structural defects and non-compliance to the safety features leading to non-issuance of License and accreditation to operate as a Molecular Laboratory, will be imposed to the contractor as a whole.
4. No material and equipment shall be installed unless evaluated and accepted by the Technical Working Group and by the End-Users

II. CONCEPTUAL DESIGN:

A. GENERAL DESCRIPTION OF THE MOLECULAR LABORATORY

The molecular laboratory shall have adequate and appropriate areas to safely, effectively and efficiently provide services to clients:

1. There shall be a decided space for each of the following activities:
 - a. Specimen receiving
 - b. Virus inactivation and nucleic acid extraction (Pre-PCR)
 - c. Reagent storage and handling:
 - d. PCR and clerical activities
2. There shall be a decided space for the Laboratory Staff:
 - a. Staff lounge with pantry

- b. Toilet and bath with washing area and provision of washing equipment (Front loading automatic washing machine)
 - c. Storage cabinets for gowns, scrubs and street clothes
- 3. Unidirectional workflow following the above-mentioned activities shall be maintained at all times
- 4. The prototype floor plan and checklist for constructing a COVID-19 testing laboratory shall be used as reference in the implementation of the project.
- 5. Controlled and adequate ventilation with the prescribed air changes per hour (ACH) shall be maintained for each specific area.
- 6. Adequate lighting shall be provided in all areas.
- 7. There shall be appropriate signage and that only personnel shall be allowed to enter each area of the Laboratory using Radio Frequency Identification system (RFID)
- 8. CCTVs, communication devices and computer cables in appropriate areas duly approved by the Communication Department
- 9. All areas must be equipped with appropriate firefighting equipment
- 10. The total area for the laboratory must be at least 100 square meter (sq. meters) except additional areas like: lobby, toilet and bath, washing area pantry and lounge.
- 11. Continuous provision of clean water at all times
- 12. Provide security fence with entrance/exit gates and appropriate perimeter lights.

B. PHYSICAL COMPONENTS/STRUCTURES:

Must comply with the General notes and Reference Plan of the Covid19 testing Laboratory using RT-PCR

C. REQUIRED SPECIFICATIONS PER WORK AREA:

- 1. Receiving Counter:
 - a) Working table with provision of AC outlets, internet and landline cables.
 - b) Swing door (counter type).
 - c) Pass box going to the specimen receiving room.
- 2. Specimen Receiving Room
 - a) Anteroom with hand washing sink and eyewash.
 - b) Magnehelic gauge
 - c) With ducted Air Conditioning unit (at-least three (3) ACH of fresh air) and exhaust (at least twelve (12) ACH) and directed away from people and adjacent structures.
 - d) Door (RFID activated).
 - e) Laboratory work counter and deep sink with eyewash.
 - f) Pass boxes from the reception area and going to Specimen Handling / Sample Preparation Room.
 - g) Stainless steel utility sink with eyewash

- h) Provision of AC outlets for refrigerator, biological safety cabinet, and autoclave.
- i) Stainless steel exhaust hood installed directly above the Biosafety Cabinet.
- j) Negative pressure with at least 2.5 Pa.

3. Change Room

- a) Magnehelic Gauge.
- b) Personal Protective Equipment (PPE) cabinet.
- c) Handwashing sink with eyewash.
- d) PPE rack and hamper.
- e) Door (RFID activated).

4. Reagent Preparation Room

- a) Magnehelic Gauge.
- b) Door (RFID activated)
- c) Laboratory work counter and deep sink with eyewash.
- d) Provision of AC outlets above the laboratory work counter top for the following equipment: mini centrifuge / micro centrifuge, vortex, laminar hood, automated extraction machine.
- e) Provision of wall mounted AC outlets for refrigerator and freezer.
- f) With ducted Air Conditioning unit (at-least three (3) ACH of fresh air) with filter at 90-95% efficiency and a laminar airflow exit.
- g) Pass box going to the specimen handling room.

5. Specimen Handling / sample Preparation Room / Pre-PCR Room

- a) Door (RFID activated).
- b) With ducted Air Conditioning Unit (at-least three (3) ACH of fresh air) and exhaust (at-least twelve (12) ACH) and directed away from people and adjacent structures.
- c) Laboratory work counter and deep sink with eyewash and provision of AC outlets for the following equipment: mini centrifuge / micro centrifuge, vortex, PCR hood
- d) Provision of wall mounted AC outlets for biological safety cabinet, autoclave, refrigerator and freezer.
- e) Pass boxes to and from the following areas: Specimen Receiving Room, Reagent Preparation Room and Template Adding Room
- f) Working table with AC outlets and cables for internet and landline
- g) Anteroom/Doffing room with handwashing sink and eyewash
- h) Stainless steel exhaust hood installed directly above the Biosafety Cabinet.
- i) Negative pressure with at least 2.5 Pa.

6. Polymerase Chain Reaction (PCR) Room

- a) Magnehelic Gauge
- b) Door (RFID activated)

- c) With Ducted Air Conditioning unit (at least three (3) ACH of fresh air) and exhaust (at least six (6) ACH) and must be directed away from people and adjacent structures.
- d) Laboratory work counter and deep sink equipped eyewash and provision of AC outlets for the following equipment: Real Time Polymerase Chain Reaction (RT-PCR) Machine, mini centrifuge, conventional PCR Machine and Freezer
- e) Working table with provision of AC outlets and cables for internet and landline
- f) Anteroom with stainless steel utility sink with eyewash
- g) Negative pressure with atleast 2.5 Pa.

7. Template Adding Room

- a) Door (RFID activated)
- b) Laboratory work counter and deep sink with eyewash and provision of AC outlets for PCR hood and other equipments
- c) Pass box going to Specimen Handling / Sample Preparation Room
- d. With ducted Air Conditioning unit (at least three (3) ACH of fresh air) with filter at 90-95% efficiency and a laminar airflow exit

8. Clean Write Shop and Supply Room

- a) Working table with provision of AC outlets and cable for internet and landline
- b) First Aid Cabinet
- c) Spill Kit Cabinet
- d) Working table with cabinet and leg room
- e) Hanging Cabinet above the working table
- f) With ducted Air Conditioning unit (at least three (3) ACH of fresh air and a laminar airflow exit

9. Service Corridor

- a) Exit area from Specimen Receiving Room, Specimen Handling Room and PCR Room
- b) Emergency Shower and Eyewash near the facility exit
- c) With ducted Air Conditioning unit (at least three (3) ACH of fresh air and a laminar airflow exit

10. Other Areas Outside the Laboratory

- a) Lobby leading to the change room, entry and exit leading to specimen room and Clean write shop/supply room
- b) Accessible to Comfort room (Toilet and Bath with washing area)
- c) Ducted Air conditioning unit (at least three (3) ACH of fresh air) and a laminar air flow exit.

D. PROJECT COMPONENTS

Site and space planning were governed by the standards, rules and regulations on the design of Level 3 hospitals as prescribed by the Department of Health and other concerned agencies. Building design shall conform to the provisions of the National Building Code of the Philippines (PD 1096), Accessibility Law (BP 344), National Structural Code of the Philippines, Electrical Engineering Law (RA 7920), Mechanical Engineering Law (RA 5336), Plumbing Code (RA 1378, 1993-1994 Revisions), Fire Code (RA 9514) and other laws and regulations covering environmental concerns and local ordinances and regulations.

1. Pre-Detailed Design

1.1 Engineering Surveys and Investigations

Surveys and investigations of the site includes boundaries of the property, elevations and contours (at 0.5m interval), location, dimension, floor elevations and other pertinent data on existing buildings and improvements (roads, parking areas, mature trees) and existing utility lines (e.g. water, power, telephone).

1.2 Design Development Drawings

1.2.1. Preparation of the following drawings for design development based on the DOH approved reference/sample plan ANNEX D1 A.O. NO. 2020-0014

1.2.2. Additional space required by the End User / RITM

- Staff Lounge and Pantry with Toilet and Bath
- Linen Washing Area
- Storage Area for PPEs and Personal Locker
- PCR Room Doffing Area

2. Detailed Design

Preparation of the following Detailed Design Drawings (see Checklist of Drawings Requirements) based on the Design Development Drawings and Design Parameters including any revisions and refinements as approved and required by the DOH/R2TMC

- a. Detailed Architectural Plans (refer to Checklist of Drawings Requirements and Design Parameters).
- b. Detailed Structural Plans (refer to Checklist of Drawings Requirements and Design Parameters).
- c. Detailed Electrical Plans (refer to Checklist of Drawings Requirements and Design Parameters).
- d. Detailed Storm Drain, Sanitary and Plumbing Plans (refer to Checklist of Drawings Requirements and Design Parameters).

- e. Detailed Mechanical Plans (refer to Checklist of Drawings Requirements and Design Parameters).
- f. Structural Computations, including Soil Boring Test Results and Seismic Analysis and Electrical Design Computations.
- g. General Notes and Technical Specifications describing type and quality of materials and equipment to be used, manner of construction and the general conditions under which the project is to be constructed.
- h. Bill of Qualities, Detailed Estimates including a summary sheet indicating the unit prices of construction materials, labor rates and equipment rentals.
- i. Summary of Works

3. Construction

As a rule, contract implementation guidelines for procurement of infrastructure projects shall comply with Annex “E” and guidelines for the implementation of contracts for DESIGN AND BUILD infrastructure projects shall comply with Annex “G” of IRR, RA 9184. The following provisions shall supplement these procedures:

- 4.1. No works shall commence unless the contractor has submitted the prescribed documentary requirements and the DOH/R2TMC has given written approval. Work execution shall be in accordance with reviewed and approved documents.
- 4.2. The contractor shall be responsible for obtaining all necessary information as to risks, contingencies and other circumstances which may affect the works and shall prepare and submit all necessary documents specified by the concerned Building Officials to meet all regulatory approvals as specified in the contract documents.
- 4.3. The contractor shall submit a detailed program of works within fourteen (14) calendar days after the issuance of the Notice to Commence for approval by the procuring entity that shall include, among others:
 - a. The order in which it intends to carry out the work including anticipated timing for each stage of design/detailed engineering and construction;
 - b. Periods for review of specific outputs and any other submissions and approvals;
 - c. Sequence of timing for inspection and tests;
 - d. General description of the design and construction methods to be adopted;
 - e. Number and names of personnel to be assigned for each stage of the work;
 - f. List of equipment required on site for each stage of the work; and
 - g. Description of the quality control system to be utilized for the project.

4.4. **Any errors, omissions, inconsistencies, inadequacies or failure submitted by the contractor that do not comply with the requirements shall be rectified, resubmitted and reviewed at the contractor's cost. If the contractor wishes to modify and design or document which has been previously submitted, reviewed and approved, the contractor shall notify the DOH/R2TMC within a reasonable period of time and shall shoulder the cost of such changes.**

4.5. As a rule, changes in design and construction requirements shall be limited only to those that have not been anticipated in the contract documents prior to contract signing and approval. The following guidelines shall govern approval for change or variation orders:

- a. Change Orders resulting from design errors, omissions or non-conformance with the performance specifications and parameters and the contract documents by the contractor shall be implemented by the contractor **at no additional cost to the DOH/R2TMC.**
- b. Provided that the contractor suffers delay and/or incurs costs due to changes or errors in the DOH/R2TMC performance specifications and parameters, the contractor shall be entitled to either one of the following:
 - An extension of time for any such delays under Section 10 of Annex "E" of IRR (RA 9184); or
 - Payment for such costs as specified in the contract documents, provided, that the cumulative amount of the variation order does not exceed ten percent (10%) of the original project cost.
- c. The contract documents shall include the manner and schedule of payment specifying the estimated contract amount and installments in which the contract will be paid.
- d. The contractor shall be entitled to advance payment subject to the provisions of Section 4 of Annex "E", IRR (RA 9184).
- e. The DOH/R2TMC shall define the quality control procedures for the design and construction in accordance with the DOH/R2TMC guidelines and shall issue the proper certificates of acceptance for sections of the works or whole of the works as provided for in the contract documents.
- f. The contractor shall provide all necessary equipment, personnel, instruments, documents and others to carry out specified tests.
- g. This design and build projects shall have a minimum Defects Liability Period of one (1) year after contract completion or as provided for in the contract documents. This is without prejudice to the liabilities imposed upon the engineer/architect who drew up the

plans and specification for building sanctioned under Section 1723 of the New Civil Code of the Philippines.

- h. The contractor shall be held liable for design and structural defects and/or failure of the completed project within the warranty period of 15 years for permanent structures/buildings as specified in Section 62.2.3.2 of the IRR (RA 9184)

E. MINIMUM BASIC ELIGIBILITY

1. Basic

- 1.1. The eligibility requirements for Design and Build Scheme shall comply with the applicable provisions of Sections 23 – 24 of IRR of RA 9184. And
- 1.2. A modified set of requirements integrating eligibility documents and criteria for infrastructure projects and consulting services shall be adopted in accordance with Annex G - Guidelines for the Procurement and Implementation of Contracts for Design and Build Infrastructure Projects Annex “G” of IRR of RA 9184
- 1.3. The Design and Build Contractor must have completed projects in the amount of at least fifty percent (50%) per project package in the last ten (10) years and must have the network and resources in place preferably per region, to mobilize the contemplated nationwide Design and Build Services.
- 1.4. The Design and Build Contractor must have completed designed and constructed at least three (3) Molecular Laboratory in the Philippines that is duly licensed by the DOH and accredited by the RITM.

2. Specialized

- 2.1. For the Pre-Detailed Design and Detailed Design portion of the contract, the Bidder should have the minimum number of professionals as shown below:
 - a. Project Coordinator
 - i. Licensed Architect or Engineer
 - ii. At least 10 years of experience in overall project management
 - iii. Superb oral and written communication skills, organization skills and excellent administrative abilities.
 - b. Architect
 - i. Licensed Architect
 - ii. Preferably at least 5 years of experience in hospital design, hospital related projects and molecular laboratory projects
 - iii. Proficient in AutoCAD software

- c. Structural Engineer and Civil Engineer
 - i. Licensed Structural/Civil Engineer
 - ii. Preferably at least 5 years of experience in hospital design and hospital related projects
 - iii. Proficient in AutoCAD software
- d. Professional Electrical Engineer
 - i. Licensed Professional Electrical Engineer
 - ii. Preferably at least 5 years of experience in hospital design, hospital related projects and molecular laboratory projects
 - iii. Proficient in AutoCAD software
- e. Professional Mechanical Engineer
 - i. Licensed Professional Mechanical Engineer
 - ii. Preferably at least 5 years of experience in hospital design, hospital related projects and molecular laboratory projects
 - iii. Proficient in AutoCAD software
- f. Sanitary Engineer
 - i. Licensed Sanitary Engineer
 - ii. Preferably at least 5 years of experience in hospital design, hospital related projects and molecular laboratory projects
 - iii. Proficient in AutoCAD software
- g. Professional Electronic and Communication Engineer or Systems Engineer
 - i. Licensed Professional Electronic and Communication Engineer or Systems Engineer accredited/certified by TESDA or DICT or any independent body
 - ii. Preferably at least 5 years of experience in hospital design, hospital related projects and molecular laboratory projects and communication connections in all
 - iii. Proficient in AutoCAD software
- h. CADD Operator (preferably one)
 - i. At least Bachelor's Degree in Architecture or Engineering
 - ii. Proficient in AutoCAD software

F. PROPOSED METHODS OF CONSTRUCTION

1. Advanced Construction Technology
2. Modular Type of Construction
3. Concrete – Steel Composite Structures
4. Long Span Roof

G. GENERAL REQUIREMENTS

1. **MOBILIZATION / DEMOBILIZATION:** The Contractor upon receipt the Notice to Proceed shall immediately mobilize equipment, materials, and manpower to the site while waiting for the prepared design and DAED and demobilize or remove the same at the completion of the said project;
2. **TEMPORARY FACILITIES:** Shall include as per item;
 - a. Field office, workshop, stockpile areas, and storage for materials, and equipment but in no way pose as a hazard to the premises.
 - b. Workforce facilities including water supply, electrical power requirements, shall be in sub-metering and/or the contractor can provide stand-by generator set and water truck. Drainage, sewage disposal, sanitation, first aid, refuse collection, temporary fences and barricades, and fire protection facilities.
3. **SAFETY AND HEALTH STANDARD AND HOUSEKEEPING:** Submit Occupational Safety and Health Program and Provide Protective Equipment (PPE) and Safety Signage based from contract and IRR RA 11058. Must comply with the New Normal standards.
4. **DRAWING AND SUBMITTALS:** Submit approved Detailed Architectural and Engineering Design (DAED) as per DOH design parameters, Design and Construction Schedule, Shop Drawings, and As-build Plans including its electronic file.
5. **PERMITS AND LICENSES:** The contractor shall conform/comply to all permits, licenses, and other necessary requirement of the National Building Code, Department of Health, Local rules and regulations of the Municipality of Bayombong, Nueva Vizcaya, and other related Government agency (Building permit, permit to operate, occupancy permits, zoning permit, fire safety certificate, and other related permit and licenses necessary)
6. **PROJECT BILLBOARD:** For infrastructure projects, a tarpaulin signboard must be suitably framed for outdoor display at the project location, and shall be posted as soon as the award has been made. The design and format of the tarpaulin shall have the following specification;
 - a. Background color: white
 - b. Dimension: 8 feet x 8 feet
 - c. Resolution 70 dpi
 - d. Font Style: Helvetica
 - e. Font Size: Main information – 3 inches , Sub-information – 1 inch
 - f. Font Color: Black

III. PERFORMANCE SPECIFICATIONS AND PARAMETERS

A. SUBJECT : ARCHITECTURAL DESIGN PARAMETERS

i. Codes and Standards

The Architectural Works shall be in accordance with the following Laws, Codes and Standards.

• **Laws and Codes:**

1. National Building Code of the Philippines and its Latest and Amended IRR
2. RA 9266 or Architecture Law and its Latest and Amended IRR
3. RA 4226 or Hospital Licensing Act and its Latest and Amended IRR
4. BP 344 or Accessibility Law and its Latest and Amended IRR
5. AO 35, s. 1994 or AO Pertaining to the Control of Radiation Hazards
6. RA 9514 Fire Code of the Philippines
7. Existing Local Codes and Ordinances.
8. And other Laws that applies to the projects

• **Standards:**

1. Bureau of Product Standards (BPS)
2. Underwriters Laboratory (UL)
3. DOH Technical Guidelines for Hospital & Health Facilities Planning and Design
4. Guidelines in Securing a License to Operate a COVID-19 Testing Laboratory in the Philippines using Real Time Reverse Transcriptase – Polymerase Chain Reaction

ii. General Drawing Guidelines

1. *General*

- All drawings shall be computer-drafted. Drawings shall be submitted both in printed and electronic copies.
- Keep the same orientation for all plans. The north orientation shall be indicated in all architectural floor plans. The orientation of the architectural plans shall be consistent with all the engineering plans.
- Existing buildings and new works shall be clearly indicated and labeled in the site plans.
- Detailed plans shall have a scale not smaller than 1: 50 meters.
- Spot detailed plans, elevations, and sections shall have a scale not smaller than 1: 10 meters.
- Avoid notes such as 'see architectural detail' or 'see structural'. Always refer with a callout to the specific detail drawing and sheet number.

2. *Perspective*

- In the most appropriate scale, show the entire structure, façade, or prominent feature/s; include appropriate elements to scale the structure's volume (e.g. human figures, vehicles, trees and vegetation, and adjacent structures)

3. *Site Development Plans*

- The site plans shall have a scale not smaller than 1 : 400 meters and shall show the structures in relation to each other and its natural or built surroundings
- Site Development Plans shall include the following:
 - a. Contour and survey of the lot, including bearing and distance of the property line
 - b. Road network and curbs and sidewalks
 - c. Parking spaces
 - d. Reference location of existing trees
 - e. Reference location and footprint of existing buildings, with the corresponding building names and dimension, including distances between adjacent building, distances between buildings and nearest property line
 - f. Reference location of utilities, e.g. water reservoirs, septic tank, wastewater treatment plant, powerhouse, transformers, water storage area, security outposts and waiting sheds
 - g. Site furniture and other site features
- Identify building/structure name and its corresponding numbers of storey/levels
- Reflect modules and total dimension of structures
- Indicate dimensions of all other site elements

4. *Vicinity Map / Location Map*

- Locate the project site in a vicinity map (atleast 2 kilometers radius) showing district/political subdivision, major landmarks, institution, major thoroughfares
- Locate the project site in a location map (at most 2 kilometers radius) showing major and minor road networks, establishments, markers, etc.

5. *Floor Plans*

- All plans shall use a minimum scale 1: 100 meters. The same scale shall be used for the rest of the architectural, structural, sanitary, plumbing, electrical and mechanical plans, except for each trade's site plan, detailed plans and spot details.
- Include furniture/fixture/equipment layout in the plan
- Indicate with boxed room callout numbers, including the callout for floor finishes and wall finishes
- Elevation callouts shall be indicated on the floor plans and shall be consistent with the elevation drawing.
- Section line callouts on the floor plans shall be consistent with the section drawing.
- Detail callouts shall be consistent with the blow-up/spot detail drawings
- Other callouts may be used for toilets, stairs, cabinets, etc.
- Floor elevations shall be indicated in the floor plans. This shall be in reference to the natural grade line or the established finished floor lines of the adjoining existing buildings.
- The location of mechanical equipment, e.g. air conditioning shall be indicated in the floor plans. This shall be consistent with the mechanical and electrical plans.

- Door callouts shall be circles with the proper numbering, e.g. D-01.
- Window callouts shall be hexagons with the proper numbering, e.g. W-01.

6. *Elevations*

- Provide atleast four (4) elevations. However, if structure is clustered (polygonal or with interior openings), provide elevations for all exterior walls
- Indicate measurements for finish floor levels and notable building heights (e.g. roof/s, parapet/s, canopies, spires, towers and other projections) where applicable
- Indicate measurements for other surface feature/elements
- Finish floor lines and top of truss lines shall be consistent in all the elevations, sections and structural plans and details.
- The height from finish ground line to finish ground floor line shall be higher than the recorded flood level of area for the past five (5) years
- Indicate all wall finishes, detail callouts for spot details

7. *Sections*

- Provide atleast two (2) sections. However, if structure is clustered (polygonal or with interior openings), provide sections to show notable features
- Indicate measurements for finish floor levels, ceiling heights, wall heights and other notable dimensions
- Indicate interior wall finishes, detail callouts

8. *Roof Plan*

- Indicate roof finish/es, slope and slope direction
- Indicate gutter finish, if applicable
- Indicate exterior building wall line (hidden line)
- Indicate downspouts, if applicable
- Provide details for gutters, downspouts

9. *Reflected Ceiling Plans*

- Reflected ceiling plans shall be indicated with boxed room callout numbers, including the callout for ceiling finishes and lighting fixtures.
- Ceiling height relative and in reference to the finish floor line shall be indicated in the reflected ceiling plans in each room with boxed dimensions. This is to ensure that the ceiling heights of all rooms are established whether or not reflected in the sections.
- The description and location of the fixtures, e.g. lighting, smoke detectors, air-condition vents, exhaust fans, in the reflected ceiling plans shall be consistent with the electrical and mechanical plans.
- Provide details for ceiling features, where necessary.

10. *Stairs, Fire Escape/Exit, Ramps*

- Present a blow-up plan including detail section/elevation and spot details for all stairs, fire exits, and ramps on a scale of not smaller than 1:50 meters. Indicate dimensions and finishes.

11. *Toilets, Baths, Washing Area/Room*

- Present blow-up plan including detail section/elevation (to show all sides of the room) and spot details on a scale of not smaller than 1:50 meters. Indicate dimensions, elevations, clearance, center lines, slopes, fixture type, finishes and accessories.
- Provide fixture detail and accessories including mounting heights from finish floor levels.

12. *Specialized Design*

- Provide detailed/shop drawings for built-up or pre-assembled partitions, cabinets, closets, counters, lockers, etc.

13. *Bay Section*

- Provide bay section/s of scale not smaller than 1:50 meters for exterior walls showing on detail, systems, connections for the entire vertical length from basement/ground to topmost elements (roof, parapet, deck)

14. *Special Rooms*

- Provide blow-up plans, elevation/section and details on a scale of not smaller than 1:50 meters all rooms with special design and construction considerations examples of which are Negative Pressure Rooms, Laboratories, and other rooms with Utility system requirements

15. *Doors and Windows*

- Provide Door and Window schedules indicating the type of door or window, the number of sets, the location/s of the door or window, the materials and accessories included and other special specifications, e.g. color or finish, operation system and detailed elevation and plan (where necessary)

16. *Schedule of Materials*

- In matrix form, identify floor, wall, ceiling, counter and other accessories and other accessories/ornaments finish for all rooms/areas on plan

iii. Building Design Guidelines

1. *Floor Plans*

- The structural, sanitary, plumbing, electrical and mechanical designs are required to refer to the architectural plans and specifications in case of discrepancies. If an engineering design will have any possible conflict or interference on the architectural design, the latter may be adjusted provided that the aesthetic value will not be compromised.
- The architectural and engineering plans shall be consistent all throughout in terms of dimensions and locations of columns, beams, walls, roof line, conduits, ducts, pipes, and fixtures, among others. Column and beam grid lines shall also be consistent in all the architectural and engineering plans.
- Verify and coordinate floor plans with the mechanical, electrical and sanitary design with regard to the requirements for mechanical rooms, AHU rooms, electrical rooms, pipe chase, and other engineering requirements
- Toilet and Baths shall have provisions and fixtures for persons with disability as required by BP 344. If enough space allows, toilets specially made and designated for persons with disability is preferable.

2. *Walls*

- Layout and work on wall and floor finish must be aligned, plumb, level, and square.
- All walls shall be sound, safe, and made of sturdy, impervious (waterproof, impenetrable, and impermeable) materials, easy-to-clean, with anti-bacterial, anti-fungicidal, chemical resistant finishes.
- Exterior walls shall be 200mm. thick, while interior walls shall be 150mm. thick. This is indicative of the finished wall thickness including the plastering and tile works.
- Interior walls finish/material shall be:
 - a. Room grade wall panel 150mm thick indicative of the finished wall thickness
 - b. Interior walls must be floor to floor height to prevent cross contamination and for fire safety compartmentalization
 - c. Smooth surface with minimum perforations and crevices
 - d. Minimum ridges or reveals that could serve as dust collectors
 - e. Wipe-able / Washable / disinfect; high touch surfaces with minimal joint / seams in the room
 - f. Non-glare finishes
 - g. Minimum emission of Volatile Organic Compounds (VOCs)
 - h. Low toxicity of materials
- All wall design, finish and color shall be approved first by the R2TMC Engineers with the End User before application/installation.

3. *Floors*

- Floors at the openings for persons with disability shall be sloping. Indicate in the plans and sections.
- Provide coved right angles between floor and wall

- Floor finish/material shall be:
 - a. Monolithic, structurally sound, safe, and made of sturdy and impervious (waterproof, impenetrable, impermeable)
 - b. Flush flooring transitions, provide leveling where necessary
 - c. Stable, firm, and slip-resistant especially around water usage
 - d. Minimum joints and seams to ensure that sharp edged objects, like walking stick or heels, do not cause trips
 - e. Smooth surface with minimum perforations and crevices
 - f. Minimum ridges or reveals that could serve as dust collectors
 - g. Joints and seams treated for easy cleaning / maintenance
 - h. Does not scratch / scuff easily
 - i. Prevent the growth of mildew and mold due to moisture retention
 - j. With high life cycle performance
 - k. Minimum emission of Volatile Organic Compounds (VOCs)
 - l. Low toxicity of material
 - m. Anti-bacterial finish
- Provide details in the floor pattern design.
- All floor design, finish and color shall be approved first by the R2TMC Engineers with the End User before application/installation

4. *Ceiling*

- Provide details for ceiling design
- Maintain minimum floor finish to ceiling finish height clearance of 2.60 m for rooms to accommodate biological safety cabinet.
- Provide ample clearance for mechanical ducting in ceiling
- Ceiling finish/material shall be:
 - a. Preferably monolithic construction with well-sealed penetration, provide sealed-edge maintenance manholes outside the regulated Laboratory.
 - b. Structurally sound, safe, sturdy and impervious (waterproof, impenetrable, impermeable)
 - c. Smooth surface with minimum perforations and integrated seals
 - d. Minimum ridges or reveals that could serve as dust collectors
 - e. Non-glare finish
 - f. Minimum emission of Volatile Organic Compounds (VOCs)
 - g. Anti-bacterial coating/finish
- Soffit of exterior beams and slabs shall have drip moulds to prevent damage due to water sipping into the eaves or ceiling. Section details shall be required to show the drip mould.
- All ceiling design, finish and color shall be approved first by the R2TMC Engineers with the End User before application/installation

6. *Doors*

- Door width clearance shall be atleast 1.00 meter in order to accommodate entry and exit of equipment (comply with the DOH Standard for Covid-19 Testing Laboratory).
- Provide Radio Frequency Identification (RFID) access control system (security system) to special areas identified by the R2TMC Laboratory Department/End user

- Provide Airlock Doors with closing mechanism preferably with an interlocking device
- Use Swing door, single or double leaf as needed
- Doors with seals at top and sides including astragal for double doors
- Provide doors with view glass (tempered/safety glass) except for those areas that requires privacy (e.g. Toilets and Bath, and the like)
- Door material/finish shall be:
 - a. Made of sturdy, structurally sound, safe, impervious, dust-free, resistant to bacteria and abrasion, and can withstand frequent disinfection and treatment
 - b. Wipe-able / Washable, easy to clean / disinfect; high touch surfaces with minimal joint/seams
 - c. Smooth surface with minimum perforations and crevices
 - d. Minimum ridge or reveals that could serve as dust collectors
 - e. Provide door warranty period.
- Door core materials shall be flame-retardant paper honeycomb or aluminum honeycomb, light and structurally strong.
- Fire Exit Doors should provide with heavy duty panic hardware and door closers, and shall conform with the requirements of the Fire Code of the Philippines
- All doors of a high-occupancy room shall swing outwards and as required by the Fire Code of the Philippines.
- Door knobs shall be heavy duty lever type.
- All doors shall have reinforced lintel beams. Provide detail.
- All door materials, finishes, and accessories and hardware shall be approved first by the R2TMC Engineers with the End User before application/installation.

7. *Windows*

- All window glass shall be tempered/safety glass
- Window shall be Sealed type, double glazed window filled with argon, fire rated tempered glass for areas equipped with negative pressure (airlock room)
- Operable window with access outside for natural daylight for clean write shop and supply room, service corridor, toilets/wash room, and areas with no negative pressure is required
- Solar shading where necessary.
- Prevention of personnel being viewed outside through exterior windows
- Non-institutional looking finish materials
- All windows shall have reinforced lintel beams
- Window sills shall be slightly sloped outwards to prevent damage to windows and paint due to water seepage. Section details shall be required to show this slope.
- All window materials, finishes, and accessories and hardware shall be approved first by the R2TMC Engineers with the End User before application/installation

8. *Lighting Fixtures and Accessories*

- Lighting fixtures shall be:

- a. Minimum ridges, reveals or horizontal surfaces on objects that could serve as dust collectors
- b. Non-institutional looking finish material
- Three-way electrical light switches shall be provided both ends of the corridor
- Electrical light switches shall be located by the door knob side of the door
- Whenever feasible, use natural light as the primary daytime light source
- All areas must acquire uniformity of light
- Working areas specially in a laboratory facilities must have the highest recommended light levels but must be provided from low-glare and shadow-free lighting system
- Lighting fixture housing shall be closed/sealed type or minimum ridges, reveals or horizontal surfaces on objects that could serve as dust collectors
- Lighting Fixture housing shall be wipe-able, washable, easy-to-clean, disinfect; high touch surfaces with minimal joint/seams
- Provide central grounding system
- All lighting fixtures shall be approved first by the R2TMC Engineers with the End User before application/installation

9. *Plumbing Fixtures and Accessories*

- Provision of Emergency Eyewash in all laboratory sinks and sensor operated soap dispenser
- Emergency Shower and Eyewash shall be approved type
- Toilet and bath shall always be provided with heavy-duty soap dispensers and paper towel dispenser.
- Toilet and bath shall always be provided with stainless steel handrails in conformity to the requirements of BP 344.
- Provision and installation of face mirror on every lavatory
- Water closet shall be flush type with close coupled tank with cover, bidet, and complete fitting and mounting accessories
- All faucet shall be stainless steel movable design
- Floor drain must be stainless steel concealed type
- A drainage line shall be provided for window-type air conditioners. Likewise, split-type air conditioners located in the interior part of the building shall be so located adjacent to areas with drainage lines, e.g. toilets, downspouts, balconies.
- All plumbing fixtures shall be approved first by the R2TMC Engineers with the End User before application/installation

10. *Exhaust*

- For the Specimen Receiving and Specimen Handling/Sample Prep Room exhaust must maintain an air exchange rate greater than or equal to 12 air changes per hour (ACH) and must be directed away from people and adjacent structures
- For the PCR Room exhaust must maintain an air exchange rate greater than or equal to 6 air changes per hour (ACH) and must be directed away from people and adjacent structures

- The exhaust systems should be installed with bag-in bag-out HEPA filter for viral pathogens.
- The additional exhaust requirement to be considered if the area has adjacent buildings, stack should not have a gooseneck or cap and should be at least 3.00 meters higher than the highest point of the roof or adjacent building.
- Installation on Magnehelic gauge is recommended for monitoring negative pressure for specimen receiving area, specimen handling room and PCR room.
- The Stainless steel exhaust hood must be installed directly above the Biological Safety Cabinets.
- The exhaust motors should be variable type to attain pressure requirements inside the work areas.

11. *Air Conditioning*

- All air conditioning must be centralized and ducted with at least three (3) ACH of fresh air.
- Air exit through a laminar flow duct in areas with positive pressure.
- Air exit through the Stainless steel exhaust hoods installed directly above the bio-safety cabinets and PCR hood laminar air flow in areas with negative pressure.

12. *Pass box*

- All pass box must be Stainless steel
- Must have a minimum approximate internal dimension of 0.60m x 0.60m x 0.60m (l x w x h)
- UV Germicidal Lamp
- Electrically and mechanically interlocked.

13. *Bag-in/Bag-out High Efficiency Particulate air (HEPA) filter box.*

- Bag Type Safe Change filter housing
- Installed as a single module per exhaust area
- Pressure can reach 3000 Pa
- Must prevent leakage of harmful bacteria like viruses.

14. *Cabinet/Carpentry*

- Provision of preferred height for work benches/counters. Sit to stand counter height
- Provide knee space
- No counter aprons or drawers at working position to ensure leg/thigh clearance
- Cabinets and counter top materials shall be sturdy, impermeable, smooth surface with minimum perforation and crevices, easy-to-clean, spill resistant and/or chemical resistant, high touch surfaces with minimal joint/seams, rounded edges, and ideal for a working condition for a laboratory.
- All surfaces shall be smooth with minimum perforations and crevices
- All cabinet/carpentry materials, finishes, and accessories must be approved first by the R2TMC Engineers with the End User before application/installation

15. *Roofing*

- The slope of the roof shall not be less than 30 degrees

- Roofing sheets and accessories shall be galvanized iron with 0.6 mm thick, pre-fabricated, and pre-painted material
- The section of the roof gutters shall be designed, in case of a clogged downspout, so that the overflow of water will be directed outside of the building and not towards the eaves or interior ceiling to prevent any damage.
- All roofing materials, finishes, and accessories shall be approved first by the R2TMC Engineers with the End User before application/installation

16. *Ramps and Corridors*

- Ramps for persons with disability shall have a slope not higher than 1:12. Handrails and clearances shall conform with the requirements of BP 344.
- Corridors and exit doors shall conform with the requirements of the Fire Code of the Philippines.

17. *Perimeter Fence*

- Provide a perimeter fence with appropriate lighting
- Provide Steel gate for entry and exit of the facility
- Provide a guard house.
- Provide CCTV.
- And other necessary items for the security to avoid unauthorized personnel entering the facility.

iv. Drawing Requirements: See attached DOH checklist of drawings.

Republic of the Philippines
Department of Health
NATIONAL CENTER FOR HEALTH FACILITY DEVELOPMENT
 Bldg. No. 4, San Lazaro Compound, Rizal Avenue, Sta. Cruz, Manila 1003
 Tel. Nos. 743-83-01 loc. 1453 and 1454



Checklist of Drawing Requirements in the preparation/evaluation/approval of
 Detailed Architectural and Engineering Plans and other Documents for
 Infrastructure Project Implementation



Reference: *Revised Implementing Rules and Regulations of the National Building Code of the Philippines (PD 1096)*

Project :

Location :

SHEET NUMBER	SHEET CONTENTS	REMARKS *
	ARCHITECTURAL DRAWINGS (as applicable)	
A – 1 (a...n)	Perspective, Site Development Plan, Vicinity Map/Location Plan (2.00 Kms. Radius) Table of Contents	
A – 2 (a...n)	Floor Plans (scale 1:100m minimum) including furniture layout when necessary	
A – 3 (a...n)	Four (4) Elevations (scale 1:100m minimum)	
A – 4 (a...n)	Two (2) Sections (scale 1:100m minimum) including spot details when necessary	
A – 5 (a...n)	Roof Plan/s showing downspouts (scale 1:100m minimum), including detail of gutter, downspout, etc.	
A – 6 (a...n)	Reflected ceiling plan/s (scale 1:100m minimum), including details	
A – 7 (a...n)	Details of Stairs, fire escapes/exits, accessible ramps, etc. (scale 1:50m), including details of railings, treads, risers, etc., in the form of plans, elevation/section	
A – 8	Details of Toilets (1:50 m) including accessible toilets in the form of plans, elevation/section	



(a...n)		
A – 9 (a...n)	Details of specialized design features (scale 1:50 m) such as partitions, cabinets, etc. and accessible design features	
A – 10 (a...n)	Detail of typical bay section from ground to roof (scale 1:50 m)	
A – 11 (a...n)	Details of special rooms (1:50 m) in the form of plans, elevations/section	
A – 12 (a...n)	Schedule of doors, gates, emergency exits, etc. (scale 1:50 m), including specifications for materials and hardware	
A – 13 (a...n)	Schedule of windows (scale 1:50 m), including specifications for materials and hardware	
A – 14 (a...n)	Schedule of finishes for interior and exterior floors, walls, ceilings	
Architectural Technical Specifications		
Architectural Scope of Works		
Architectural Bill of Quantities		
* To be marked as either Complying or Non Complying/Complete or Incomplete by the evaluator or to be filled with supporting comments (use additional sheets if necessary)		
Evaluated by: _____		Page 1 of 6

Checklist of Drawing Requirements in the preparation/evaluation/approval of Detailed Architectural and Engineering Plans and other Documents for Infrastructure Project Implementation

Reference: Revised Implementing Rules and Regulations of the National Building Code of the Philippines (PD 1096)

Project :

Location :

SHEET NUMBER	SHEET CONTENTS	REMARKS*
	ARCHITECTURAL INTERIOR DESIGN DRAWINGS (as applicable)	
AID – 1 (a...n)	Floor Plans showing layout of floor finishes (scale 1:100m minimum)	
AID – 2 (a...n)	Floor Plans showing layout of furniture/finishing partitions, cabinets, etc. (scale 1:100m minimum)	
AID – 3 (a...n)	Interior Elevations and Sections showing wall patterns, ceiling sections, etc. (scale 1:100m minimum)	
AID – 4 (a...n)	Details of Partitions, Cabinets, Furniture, Ceiling and other Interior Design Features (scale 1:100m minimum)	
AID – 5 (a...n)	Architectural Interior Perspective/s	
Architectural Interior Design Technical Specifications		
Architectural Interior Design Scope of Works		
Architectural Interior Design Bill of Quantities		
* To be marked as either Complying or Non Complying/Complete or Incomplete by the evaluator or to be filled with supporting comments (use additional sheets if necessary)		

---End of Scheme---

B. SUBJECT: STRUCTURAL/CIVIL WORKS DESIGN PARAMETERS

I. Codes and Standards

The Civil/Structural Design shall be in accordance with the following Codes and Standards

- Codes
 1. National Structural Code of the Philippines (NSCP) 2010
 2. National Building Code of the Philippines and its revised IRR
 3. Accessibility Law
 4. Local Codes and Ordinances
- Standards
 1. Bureau of Product Standards (BPS)
 2. Philippine National Standards (PNS)
 3. DPWH Blue Book
 4. American Concrete Institute (ACI)
 5. American Society for Testing Materials (ASTM)
 6. American Welding Society (AWS)

II. Site Works

Based on Master Site Development Plan of the Hospital, provide where applicable complete design and details of hospital road (concrete with curb and gutter, including drainage) network, walkways parking areas and fencing.

1. The main entrance of the two identical buildings road shall be capable of two-way traffic (at least 6.10mts. width) with a minimum thickness of 200mm (10 inches). Concrete strength should be at least 3000psi. Interior road (leading to support facilities) shall be so designed to accommodate delivery vehicles, and fire trucks in case of emergency.
2. Walkway should be at least 100mm thick with concrete strength of 2500psi. Ramps should be provided, instead of steps, for any change in elevations.

3. Parking area slabs should be at least 150mm thick with concrete strength of 3000psi.

III. Buildings

1. The One (1) storey Molecular Laboratory should be designed using seismic importance factor of 1.25 for immediate occupancy category. Buildings should be designed in accordance with NSCP 2010 Requirements up to Magnitude 7 for those near seismic source Type A.
2. The One (1) Storey Molecular Laboratory should be designed also using wind importance factor of 1.15 (especially for design of trusses/roofing system). Concrete gutters and parapet walls should be provided as additional protection to the roofing system during strong typhoons.
3. The structural designer should verify with Philippine Volcanology and Seismology (PHIVOLCS) the distance of the proposed One (1) Storey Molecular Laboratory to nearest active fault lines and with the DENR for geo-hazard mapping.
4. The structural designer is encouraged to use fire-resistive and non-toxic materials.
5. All structural analysis should be submitted in five (5) printed copies and one (1) electronic copy.

IV. Details – the following shall be provided:

1. Connection details of beams and columns following the requirements of NSCP 2010 on confined areas.
2. Connection of trusses to beams and columns
3. Splicing details of reinforcing bars on columns and beams and the required bar cut-off points.

V. Summary of Materials

1. Concrete shall be Portland cement and conforming to ASTM Specification C150, Type I to Type II
2. Coarse Aggregates shall consist of washed gravel, crushed stone or rock or a combination thereof conforming to ASTM C33
3. Concrete Hollow Blocks shall be a standard product of recognized manufacturer conforming to PNS 16 with at least 350psi strength.
4. Reinforcing Bars shall conform with PNS Grade 60 for 16mm dia. and above and PNS Grade 40 for 12mm diameter and below.
5. Structural steel shall conform with ASTM A36/A6M
6. Bolts and Studs shall conform with ASTM A 325



7. Welding electrodes shall be E60 or E 70 and conform with AWS

VI. Drawing Requirements: See attached checklist

Checklist of Drawing Requirements in the preparation/evaluation/approval of Detailed Architectural and Engineering Plans and other Documents for Infrastructure Project Implementation

Reference: Revised Implementing Rules and Regulations of the National Building Code of the Philippines (PD 1096)

Project :

Location :

SHEET NUMBER	SHEET CONTENTS	REMARKS*
	STRUCTURAL DRAWINGS (as applicable)	
S – 1 (a...n)	General Notes and Construction Standards	
S – 2 (a...n)	Site Development Plan	
S – 3 (a...n)	Foundation Plan/s (scale 1:100m minimum)	
S – 4 (a...n)	Floor Framing Plan/s (scale 1:100m minimum)	
S – 5 (a...n)	Roof Framing Plan (scale 1:100m minimum)	
S – 6 (a...n)	Schedule and Detail of Footings and Columns	
S – 7 (a...n)	Schedule and Detail of Beams and Floor Slabs	
S – 8 (a...n)	Detail of Trusses	
S – 9 (a...n)	Details of Stairs, Ramps, Fire Exits	
S – 10 (a...n)	Other Spot details	
	Structural Analysis and Design (for 2 storey building and higher)	
	Boring and Land Test Results (for 3 storey building and higher)	
	Seismic Analysis	
	Structural Technical Specifications	
	Structural Scope of Works	
	Structural Bill of Quantities	
* To be marked as either Complying or Non Complying/Complete or Incomplete by the evaluator or to be filled with supporting comments (use additional sheets if necessary)		
Evaluated by: _____		

---End of Scheme---

C. SUBJECT : SANITARY/PLUMBING DESIGN PARAMETERS

I. Codes and Standards

The Sanitary/Plumbing Design shall be in accordance with the following Codes and Standards.

- **Codes:**
 1. National Building Code of the Philippines and Its New IRR
 2. Fire Code of the Philippines
 3. Uniform Plumbing Code of the Philippines
 4. National Plumbing Code of the Philippines (NPCP)
 5. Sanitation Code of the Philippines
 6. Existing Local Codes and Ordinances.
- **Standards:**
 1. Bureau of Product Standards (BPS)
 2. Philippine National Standards for Drinking-Water
 3. Underwriters Laboratory (UL)
 4. DOH National \ Laboratory (NRL)
 5. DOH Health Care Waste Management Manual
 6. National Water Resources Board (NWRB)
 7. National Plumbers Association of the Philippines (NAMPAP)
 8. Philippine Society of Sanitary Engineers, Inc. (PSSE)

II. Site Works

- Based on the Master Site Development of the Hospital, the Site Works shall provide complete layout of the following:
 1. Storm Drainage Network, indicating Drainage Manholes and Pipe Culvert;
 2. Sewerage Pipe Network, indicating Sewage Manholes, Sewage pipes and the location of the proposed Sewage Treatment Plant; and

- The Storm Drainage Network shall accommodate the magnitude of peak rates of surface run-off including drainage coming from the buildings. The system shall be capable of handling the design flows routing to the designated outfall;
For rainfall calculation and sizing of drainage pipes, refer to Table-D2, Appendix-D, National Plumbing Code of the Philippines and current rainfall record from PAGASA.
- The Sewerage Pipe Network design shall accommodate all sewage coming from all the facilities, conveyed by gravitational flow leading to the existing Sewage Treatment Plant; Per capita wastewater demand: 60-100 gal/capita/day per occupant
- The Water Supply Network shall include the provision of Fire Hydrants, accessible Drinking Fountain that will serve as testing point for safe and potable water supply; Per capita water demand: 80-120 gal/capita/day per occupant

III. Building Facilities Sanitary/Plumbing System

1. Sewer line, Wastewater line and Vent System
 - Provide complete Sewerline and Vent System from all (Domestic) plumbing fixtures and floor drains, laid by gravity flow leading to the Sewage Treatment Plant (STP);
 - For Demand Weight of Fixtures in Fixture Units; refer to Appendix A, Table A-2, NPCP
 - For Estimated Demand Weight of Fixtures in Fixture Units; refer to Appendix A, Table A-2, NPCP
 - For all Areas dealing with Laboratory activities and generating infectious wastes, provide separate Waste water line and Vent System routing into a proposed Neutralization Tank prior to discharge to the Sewage Treatment Plant;
 - For all Wash Areas dealing and generating with oil/grease at the Pantries/Kitchen and Canteen, provide separate Waste water line and Vent System and solely tap to the proposed Grease Trap and then connect its effluent to the Sewage Treatment Plant.
2. Waterline System
 - Provide complete cold water supply pipes to all plumbing fixtures. From the main water source.
 - Provide complete Hot water system or water heaters for selected Areas as required and or specified by the R2TMC Engineers and the End user.
 - Provision of hammer arrester to every supply of fixture
 - Control/isolation valves for every group of fixture
 - Provide Bidet / Spray hose for every toilet/water closet
 - Provide stainless water storage tank and tap to potable water supply with water pump and housing with complete accessories and electrical controls/devices
3. Storm Drainage System

- Complete Storm Drainage System shall be provided for all roofs, canopies, concrete ledges and balconies including condensate drains laid for gravity flow connected to a leader/pipeline leading to the natural ground level storm drainage network.
- Drainage manholes shall be traffic type reinforced concrete with standard cast iron cover

IV. Specific Requirements

- Provide details of the following:
 1. Grease Trap (for Canteen and Pantries/Kitchen)
 2. Neutralization Tank
 3. Stainless Water Tank with pump and housing with complete accessions and electrical devices

V. Summary of Materials

- Sewer and Vent pipes; Un-plasticized Polyvinyl Chloride (uPVC) extra series 1000 (Conforming to ISO 3633 ASTM D2729 including Trims and Fittings)
- Storm Drainage pipes; Downspouts, Un-plasticized Polyvinyl Chloride (uPVC) extra series 1000 (Conforming to ISO 3633 ASTM D2729 including Trims and Fittings, BPS Certified)
- Drainage Pipes; 250mm dia. and below, Non-Reinforced Concrete Pipe (NRCDP) 300mm dia. and above, Reinforced Concrete Pipe (RCDP)
- Drainage Manholes; Street Inlet, Curb Inlet, Traffic Type Reinforced Concrete Area drain/Catch Basin, Reinforced Load Bearing CHB
- Sewage Manholes; Traffic Type Reinforced Concrete with Standard Steel Brass Cover
- Wastewater pipeline; Extra Heavy (XH) Single Hub, Hubless Cast Iron Pipes and Fittings (CIP) conforming to ASTM Standard 888
- Cleanouts; Cast Iron Brass with counter sunk plug (BPS Certified)
- Floor Drains/Deck Drains; Cast Iron Brass (BPS Certified)
- Gutter Drains; Cast Iron Dome Type Brass (BPS Certified)
- Cold Waterline pipes; for buildings, Polypropylene Pn10 Fusion Weld Pipes including Trims and Fittings (BPS Certified)
- Hot Waterline System; for buildings, Polypropylene Pn20 Fusion Weld Pipes including Trims and Fittings (BPS Certified)
- Trench Grating; Galvanized/Stainless Steel Iron grates
- Plumbing Fixtures including Trims, Fittings and accessories; (BPS Certified)
 - a) Water Closet-Tank Type push button flush
 - b) Lavatory-(Pedestal/Counter Type) with C-spout spray faucet
 - c) Kitchen Sink-Ga#16 Stainless Steel seamless bowl with gooseneck faucet
 - d) Urinal-Wall hung Flush valve type
 - e) Emergency Shower and Eyewash
 - f) Laboratory sink equipped with eyewash

VI. Drawing Requirements: See attached DOH checklist standards based on Revised IRR of the National Building Code of the Philippines (PD 1096)



Checklist of Drawing Requirements in the preparation/evaluation/approval of Detailed Architectural and Engineering Plans and other Documents for Infrastructure Project Implementation

Reference: Revised Implementing Rules and Regulations of the National Building Code of the Philippines (PD 1096)

Project : _____
Location : _____

SHEET NUMBER	SHEET CONTENTS	REMARKS*
	PLUMBING/SANITARY DRAWINGS (as applicable)	
P – 1 (a...n)	General Notes and Legends	
P – 2 (a...n)	Location and Site Plan	
P – 3 (a...n)	Storm Drainage Layout (scale 1:100m minimum) including actual length of tapping line to Main Drainage Line	
P – 4 (a...n)	Waterline Layout (scale 1:100m minimum) including actual length of tapping line from main water source when applicable	
P – 5 (a...n)	Sewerline Layout (scale 1:100m minimum) including actual length of tapping line to septic tank or existing sewerline	
P – 6 (a...n)	Isometric Layout, showing waterline, sewerline and drainage line	
P – 7 (a...n)	Detail of connections, catch basins, downspouts, etc.	
P – 8 (a...n)	Detail of Septic Tank/Sewer Treatment Plant	
	Design Analysis	
	Sanitary Technical Specifications	
	Sanitary Scope of Works	
	Sanitary Bill of Quantities	
* To be marked as either Complying or Non Complying/Complete or Incomplete by the evaluator or to be filled with supporting comments (use additional sheets if necessary)		
Evaluated by: _____		

---End of Scheme---

D. SUBJECT : MECHANICAL WORKS DESIGN PARAMETERS

I. Codes and Standards

The Mechanical Design shall be in accordance with the following Codes and Standards.

- **Codes:**
 1. National Building Code of the Philippines and Its New IRR
 2. Fire Code of the Philippines
 3. Mechanical Engineering Code of the Philippines (ME Code)
 4. Existing Local Government Codes and Ordinances.
- **Standards:**
 1. Bureau of Product Standards (BPS)
 2. Philippine National Standards (PNS)
 3. Underwriters Laboratory (UL) and Factory Mutual (FM)
 4. International Electrotechnical Commission (IEC) 1988
 5. National Fire Protection Association (NFPA)
 6. National Fire Protection Association (NFPA) 99 Standard for Health Care Facilities.
 7. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).
 8. Center for Disease Control and Prevention (CDC) Manual.

II. Automatic Fire Sprinkler System

The automatic fire sprinkler system shall be composed of complete plans and drawings of the following:

1. Site Development Plan and Vicinity Map, indicating the location of the buildings, firewater reserve tank, firewater line, yard loop and private fire hydrant.

2. General Notes, Legends and Symbols including Schematic Diagram of the Fire Sprinkler System and Schematic Diagram of Alarm Monitoring System.
3. Floor Layout and Isometric Layout of the Automatic Fire Sprinkler System indicating pipe sizes and the location of the pipes, valves, sprinkler heads, riser nipples, fire hose cabinets, sprinkler main riser, drain pipes, cross mains, branch lines, inspector's test connections, hangers and sway braces.

- An automatic fire sprinkler shall be provided in all rooms of the Molecular laboratory including the staff area.
- Hazard Classification shall be Light Hazard Occupancy.
- Area of coverage shall be 146 square meters and water density shall be 4.07 lps/sq. m.
- Protection area per sprinkler head shall be 20 square meters at 2.2 meters minimum distance between sprinklers and 4.2 meters maximum spacing.

All floor control valves shall be equipped with supervisory switch, water flow detector and drain system.

Shall also provide appropriate portable fire extinguishers as required by the Bureau of Fire Protection (BFP). (additional)

III. Ventilation and Air Conditioning System

The ventilation and air conditioning system shall be composed of complete plans and drawings of the following:

1. General Notes, Legends and Symbols including Schematic Diagram of the Ventilation and Air Conditioning System.
2. Floor Layout of the Ventilation and Air Conditioning System indicating the capacity and location of the air conditioners and fans.
3. Duct layout indicating duct sizes, route and location of the dampers, diffusers, return air register, hangers and sway braces.
4. Refrigerant piping layout indicating pipe sizes, location of valves, hangers and sway braces.
5. Equipment Schedule and Details drawings of Air Conditioners and Ventilating System.
 - Centralized Air conditioning system shall be provided in all rooms of the One (1) Storey Molecular Laboratory and other areas where conditioned air is necessary.
 - Cooling Load calculations report shall be manual or computer generated, hourly analysis program which includes heat transmission coefficients, solar heat gain factors and corrected cooling load temperature difference calculations.
 - Design of all critical areas shall be laminar or positive pressure, wherein the supply air is 10% more than exhaust air.
 - Maintain an air change rate greater than or equal to 12 air changes per hour or 170 liters per minute.
 - Ceiling cassette type exhaust fans with integral air diffuser shall be provided in all toilets.

IV. Exhaust/Mechanical Ducting System

The Exhaust/Ducting system shall be composed of complete plans and drawings of the following:

1. General Notes, Legends and Symbols including Schematic Diagram.
2. Floor Layout and Machine Room Plan.
3. Equipment Schedule, Detail drawings and Equipment layout.
4. Architectural, Structural, Electrical and Plumbing drawings of the Exhaust/Ducting System.
 - For the Specimen Receiving and Specimen Handling/Sample Prep Room exhaust must maintain an air exchange rate greater than or equal to 12 air changes per hour and must be directed away from people and adjacent structures
 - For the PCR Room exhaust must maintain an air exchange rate greater than or equal to 6 air changes per hour and must be directed away from people and adjacent structures
 - The Reagent Preparation Room shall have a positive pressure room condition. It shall have filtered air supply with 90-95% efficiency
 - The additional exhaust requirement to be considered if the area has adjacent buildings, stack should not have a gooseneck or cap and should be at-least 3.00 meters higher than the highest point of the roof or adjacent building.
 - Installation on Magnehelic gauge is recommended for monitoring negative pressure for specimen receiving area, specimen handling room and PCR Room.
 - Exhaust ducting shall be separated from other room
 - Exhaust air should be discharged at least 7.5m away from the other ventilation intakes or occupied/public areas
 - Provision of Centrifugal Fan Exhaust Blower
 - Provision of Bag-in/Bag-out High Efficiency Particulate (HEPA) Filter Box with at least
 - Ducts shall be galvanized sheet steel of standard gauges.
 - Ductwork installation materials shall be rigid board made of Styrofoam or equivalent 25mm thick.
 - Provision of exhaust hood above the Biological Safety Cabinets.

V. Special Equipment

The Special Equipment shall be composed of complete plans and drawings of the following:

1. General Notes, Legends and Symbols including Schematic Diagram.
2. Floor Layout and Machine Room Plan.
3. Equipment Schedule, Detail drawings and Equipment layout.
4. Architectural, Structural, Electrical and Plumbing drawings of the Special Equipment.

5. All pass box must be stainless and must have a minimum approximate internal dimension of 0.60m x 0.60m x 0.60m (l x w x h) with UV Germicidal Lamp electrically and mechanically interlocked.
6. Coordinate with the End user and Department of Engineering and Facilities Management particularly with Medical Equipment Technician and the End user.

VI. Specific Requirements

Provide details of the following:

1. Centralized Air conditioning System
2. Exhaust/Mechanical Ducting System
3. Pass Box (electrically and mechanically interlock)

VII. Summary of Materials

1. Automatic Fire Sprinkler System

- a. Sprinkler head shall be UL Listed/FM Approved, pendant, upright or sidewall unit, 83 LPM flow capacity per head and temperature fusing at 57.5° C to 74°C.
- b. The alarm assembly shall be UL Listed/FM Approved, constructed and installed that any flow of water from the sprinkler system equal to or greater than that from the single automatic head shall result in an audible and visual signal in the vicinity of the building.
- c. Alarm and supervision system of the automatic water sprinkler shall include the monitoring water flow switch at each floor of the building, fire pump and jockey pump running condition and power supplies, level of water in the reservoir and control valves.
- d. Pipes shall be B.I. Schedule 40. Screw fittings shall be used for inside piping.

2. Air Conditioning and Refrigeration System

- a. Refrigerant pipes shall be copper tubing, type L or K black steel pipe, Schedule 40 for size of 100mm diameter and smaller. Pipe over 100mm shall be black steel pipe Schedule 40.
- b. Black steel pipes shall be standard seamless, lap-welded, or electric resistant welded for size of 50mm diameter and larger, screw type for size 38mm diameter and smaller, fittings for copper tubing shall be cast bronze fitting designed expressly for brazing.
- c. Pipe insulation shall be performed fiberglass or its equivalent. The insulating materials shall be covered with 100mm x 13mm thick polyethylene film, which shall be overlapped not less than 50mm.
- d. Ducts shall be galvanized sheet steel of standard gauges.
- e. Ductwork insulation materials shall be rigid board made of Styrofoam or equivalent 25mm thick for ground and top floor, 13mm thick for intermediate floor.

3. Mechanical Ducting System and Special Equipment

- a. Ducts shall be galvanized sheet steel of standard gauges.



Republic of the Philippines
Department of Health
NATIONAL CENTER FOR HEALTH FACILITY DEVELOPMENT
Bldg. No. 4, San Lazaro Compound, Rizal Avenue, Sta. Cruz, Manila 1003
Tel. Nos. 743-83-01 loc. 1453 and 1454



- b. Ductwork installation materials shall be rigid board made of Styrofoam or equivalent 25mm thick.
- c. Centrifugal Fan Exhaust Blower
- d. Magnehelic Gauge / Visual Room Pressure Monitoring Device
- e. Bag-in/Bag-out High Efficiency Particulate (HEPA) Filter Box
- f. Pass box

VIII. Drawing Requirements: See attached DOH Standard Checklists based on Revised IRR of the National Building Code of the Philippines (PD 1096)

Checklist of Drawing Requirements in the preparation/evaluation/approval of Detailed Architectural and Engineering Plans and other Documents for Infrastructure Project Implementation

Reference: Revised Implementing Rules and Regulations of the National Building Code of the Philippines (PD 1096)

Project : _____

Location : _____

SHEET NUMBER	SHEET CONTENTS	REMARKS*
	MECHANICAL DRAWINGS (as applicable)	
M – 1 (a...n)	General Notes and Legends, Site Development Plan, Location Plans	
M – 2 (a...n)	Floor Plans/Isometric Drawings (scale 1:100m minimum) showing Ventilation and Air Conditioning Systems and other installations	
M – 3 (a...n)	Floor Plans/Isometric Drawings (scale 1:100m minimum) of Fire Suppression Systems, fire sprinkler system, wet stand pipe, dry standpipe and other installation	
M – 4 (a...n)	Details Water Tank, Flow Diagram (scale 1:50m)	
M – 5 (a...n)	Details of Firewater Supply System (scale 1:50m)	
M – 6 (a...n)	Detail of Mechanical Ducting System (scale 1:50m)	
M – 7 (a...n)	Detail of Other Machinery/Equipment (scale 1:50)	
M – 8 (a...n)	Longitudinal and Transverse Section of Building (scale 1:100m) showing manner of support of machines/equipment	
M – 9 (a...n)	Other details	

Mechanical Technical Specifications	
Mechanical Scope of Works	
Mechanical Bill of Quantities	
<p>* <i>To be marked as either Complying or Non Complying/Complete or Incomplete by the evaluator or to be filled with supporting comments (use additional sheets if necessary)</i></p>	
Evaluated by: _____	Page 5 of 6

---End of Scheme---

E. SUBJECT: ELECTRICAL DESIGN PARAMETERS

I. Codes and Standards

The Electrical System Design Parameters shall be in accordance with the following Codes and Standards.

- **Codes:**
 1. Philippine Electrical Code
 2. National Electrical Code
 3. Fire Code of the Philippines
 4. National Building Code of the Philippines and Its New IRR
 5. Existing Local Codes and Ordinances
- **Standards:**
 1. Bureau of Product Standards (BPS)
 2. Underwriters Laboratory (UL)
 3. National Fire Protection Association
 4. International Electrotechnical Commission (IEC)
 5. Illumination Engineering Society (IES)
 6. National Electrical Manufacturer's Association (NEMA)
 7. DOH Manual on Technical Guidelines for Hospital and Health Facilities Planning and Design

II. Site Works

Based on the Master Site Development of the Hospital, the Site Works shall provide complete Electrical layout of the following:

1. Panelboard Layout
2. Electrical Metering Devices
3. Service Conductors and Conduit Layout
4. Grounding System
5. Street and Perimeter Lighting System

III. Building Facilities Electrical System

1. Lighting System
 - Provide and install adequate normal branch circuits for Lighting System to all areas using the standard Lighting Design Analysis. Utilize the standard Illumination requirements per area of concern using the preferred particular type of luminaires.
2. Power System
 - Provide and install adequate normal branch circuits for the Power System.
3. Auxiliary System
 - Provide and install the following Auxiliary System:
 - a) Communication System
 - Telephone System
 - Local Area Network System
 - Public Address Paging System
 - Private Branch Exchange (PABX)
 - Master or Cable Antenna Television
 - b) Fire Detection and Alarm System
 - c) Security System.
4. Lightning Protection System
 - The building lightning protection system shall include roof-mounted air terminals grounding conductors, ground rods, conduits, clamps, and auxiliary equipment as required for a complete and operational lightning protection system.
5. Emergency System
 - Provide the emergency source of electricity that is sufficient to energize all electrical, mechanical and biomedical equipment
 - The emergency power system shall be provided by a manual transfer switch with rating corresponds to the electrical design
 - The emergency power system shall not be made in China it shall be well known brand and establishment in the Philippines for a minimum of five (5) years
 - The emergency power system shall be brand new with automatic control and monitoring system and should be equipped with sound and weather proof system.

IV. Provide Details of the following:

1. Lighting Fixtures/Luminaires
2. Panelboard and Circuit Breakers
3. Switchgear and other Metering Devices
4. Electrical and Hospital Equipment
5. Installation and Termination of Auxiliary and other Special Devices and Equipment
6. Power and Telephone Handholes (as may be required)
7. Pedestal and Service Entrance to Bldg.
8. Grounding System Layout
9. Others as may be required.

V. Summary of Materials

1. General Lighting Luminaires: Fixtures type shall be as indicated on the Lighting Layout Plan.
 - Lighting Fixtures shall be LED Panel
 - Lighting Fixtures shall be day light and lamp holders shall be made of thermosetting plastic
 - Lighting fixture housing shall be closed/sealed type
 - Other Special Lighting requirements shall be as accordance with the DOH Standard and shall be approved by the R2TMC Engineers and the End User.
2. Wiring Devices: Wiring devices shall be non-automatic control devices, the contact is guaranteed by the pressure of the special spiral springs.
 - Switches shall be of 15A, 250V or 300V except as otherwise noted and approved. Terminals shall be screw-type or quick-connected type.
 - General use receptacle shall be 15A, 240V grounding type unless otherwise indicated on the drawings.
 - Special purpose receptacles shall be as called for on the drawings. Matching plugs shall be supplied.
3. Panelboards and Circuit Breakers: The Panelboard and Circuit Breakers shall be equipped with molded-case circuit breakers and shall be the type as indicated in the panelboard schedule and details.
 - Provide molded-case circuit breakers of frame, trip rating and interrupting capacity as shown on the drawings. The circuit breakers shall be quick-make, quick break, thermal-magnetic, trip-indicating and shall have common trip on all multiple breakers with internal trip mechanism.
 - All current-carrying parts of the panelboards shall be plated. Provide solid neutral (S/N) assembly when required. The assembly shall be isolated from the enclosure.
 - Electrical Conduits, Boxes and Fittings: All conduits, boxes and fittings shall be standard rigid Unplasticized Polyvinyl Chloride (uPVC) if required shall be schedule 40.
4. Conductors: Wires and cables shall be of the approved type and unless specified or indicated otherwise, all power and lighting conductors shall be insulated for 600 volts.

- The conductors used in the wiring system shall be of soft-annealed copper having a conductivity of not less than 98% of that of pure copper and insulated for 60 °C Temperatures.
- All conductors of convenience outlets and wire for lighting branch circuit homeruns shall be wired with a minimum of 3.5 mm square in size.

5. Master Antenna Television (MATV) and Cable Television (CATV) System:

- Provision of MATV and CATV, if required by the End User
- Two sources of TV signals shall be provided to the building. One (1) shall be from a master antenna installed at the roof or within a suitable area of the building and the other will be from a commercial cable television service.
- The master antenna system shall consist of FM, VHF and UHF antennas, combiner, distribution amplifier, coaxial cables, splitters, tap-offs and TV outlets.
- There shall be individual trunking for master antenna and cable television rising in the building.

6. Structured Cabling & Telephone System:

- A PABX extension and direct telephone lines.
- Final details of the system shall follow specific requirements, quantity and type of service.
- Coordination with the hospital Network and Communication Section and Management Information System Section.

7. Fire Detection and Alarm System:

- The Fire Detection and Alarm System shall be of multiplex, microprocessor-controlled addressable or zonal conventional fire detection, alarm and communication system.
- The system shall consist of full integration automatic fire detection, voice alarm communication and fire fighters telephone system.
- The system shall consist of control station, mimic panel initiating and indicating devices, control modules and system of wirings.
- Actuation of the protective signaling system shall occur by manual pull station, automatic smoke or heat detector, sprinkler flow switch and tamper switch.
- The system shall be able to monitors the status of flow switches and supervisory switches. These monitoring points are also addressable or the conventional zonal in the same way as the detectors are making them easily recognizable at the control panel.
- Occupant notification shall be accomplished automatically. Notification will be general, audible alarm type complying with appropriate section of NFPA.

8. Security System:

- The Security system shall include intrusion detection and alarm, CCTV, access control or the Radio Frequency Identification System (RFID).

VI. Drawing Requirements:

See attached DOH Standard Checklists based on Revised IRR of the National Building Code of the Philippines (PD 1096)



Checklist of Drawing Requirements in the preparation/evaluation/approval of Detailed Architectural and Engineering Plans and other Documents for Infrastructure Project Implementation

Reference: Revised Implementing Rules and Regulations of the National Building Code of the Philippines (PD 1096)

Project :

Location :

SHEET NUMBER	SHEET CONTENTS	REMARKS*
	ELECTRICAL DRAWINGS (as applicable)	
E – 1 (a...n)	General Notes and Legends	
E – 2 (a...n)	Location and Site Plan	
E – 3 (a...n)	Lighting Layout (scale 1:100m minimum) including details	
E – 4 (a...n)	Power Layout (scale 1:100m minimum) including details	
E – 5 (a...n)	Auxiliary System Layout (scale 1:100m minimum) including details	
E – 6 (a...n)	Schedule and Detail of Loads	
E – 7 (a...n)	Riser Diagram	
E – 8 (a...n)	Other Detail	
	Electrical Computation	
	Design Analysis	
	Electrical Technical Specifications	
	Electrical Scope of Works	
	Electrical Bill of Quantities	
* To be marked as either Complying or Non Complying/Complete or Incomplete by the evaluator or to be filled with supporting comments (use additional sheets if necessary)		
Evaluated by: _____		Page 6 of 6

AUXILIARY SYSTEM INCLUDES THE FF:

1. Telephone System
2. Paging System
3. LAN System
4. Fire Alarm System

---End of Scheme---

IV. PRELIMINARY SURVEY AND MAPPING

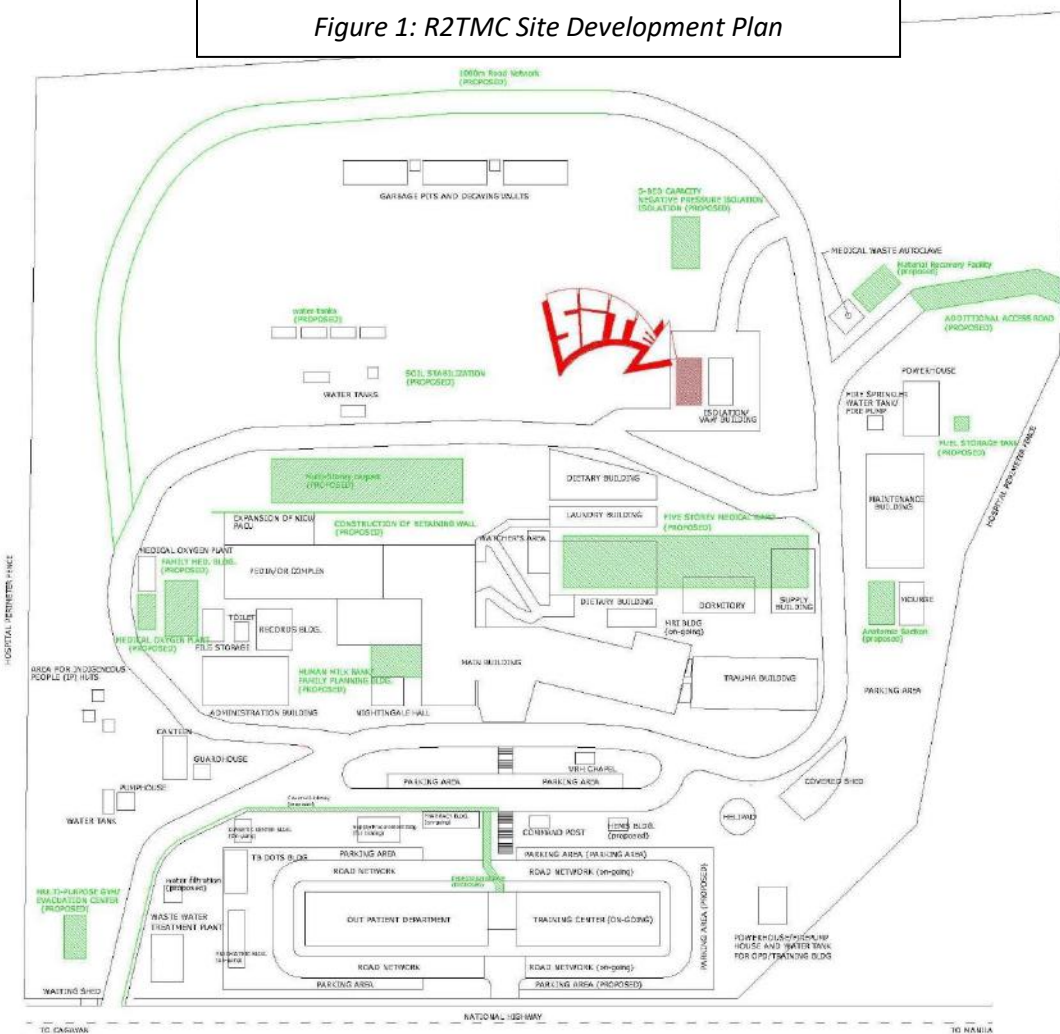
Site Development Plan

The Site Development Plan illustrate the hospital perimeter boundaries, location of the proposed project site, the existing structures and road networks, and the proposed future development. See figure 1.

The project site is mountainous in nature; it is located on a higher elevation besides the existing VAW/Isolation building (functional) with existing water source, water drainage, and electrical source. The site itself is a concreted pavement used as a driveway/route for the existing building. It has a maximum frontage of 9.0 meters that is measured from the existing roof eaves to the existing water drainage canal and the retaining wall.

Other details and data regarding the site physical condition needed by the contractor, refer to the hospital Engineering and Facilities Management Department. Actual site inspection is recommended.

Figure 1: R2TMC Site Development Plan



MASTER SITE DEVELOPMENT PLAN

SCALE

NTS



Figure 2. Actual picture of the project site

V. PRELIMINARY INVESTIGATION

The project site is mountainous in nature. Beside it is the existing VAW/Isolation Building and a reinforced concrete retaining wall. See figure 2 for the actual picture of the proposed project site.

The contractor shall provide technical information on soil, geotechnical, hydrologic, hydraulic, seismic, traffic, and environmental conditions needed/required to attain a sound structure.

VI. UTILITY LOCATION

The proposed project site is located besides the existing VAW/Isolation Building. The said structure is a functional building, that is, it has water source, water drainage, septic tank, electrical source, and telephone and LAN (internet) source. And at the back of it, approximately 10.0 meters away, the existing water pump house is located. At the right side, when facing the front view of the existing VAW/Isolation building, the proposed project site is more or less 50 meters away from the Maintenance Building where the Fire Pump House and Power House (location of the generator set) is located. As shown in the site development plan (see *figure 1*), it has an existing road network (concreted) going to the proposed project site.

Other utilities needed not mentioned, refer to the hospital Engineering and Facilities Management Department. Actual site inspection is recommended.





VII. APPROVED BUDGET FOR THE CONTRACT

The initial approved budget cost for the “DESIGN AND BUILD IMPLEMENTATION OF ONE-STOREY MOLECULAR LABORATORY INTENDED FOR COVID 19 TESTING COMPLIANT TO THE REFERENCE PLAN SET BY THE DEPARTMENT OF HEALTH” is Nineteen Million Pesos Only (Php 19, 000, 000.00).

VIII. PROPOSED DESIGN AND CONSTRUCTION SCHEDULE

The Design and Build Contractor is required to complete the Project within an indicative period as shown below, to start upon the contractor's receipt and signing of Notice to Proceed. The time frame to be followed for the project is as follows:

Design and Construction Schedule:

	Weeks											
	1	2	3	4	5	6	7	8	9	10	11	12
ACTIVITY												
Pre-Design												
Detailed Design												
Application and Issuance of Building Permit and other applicable licenses												
Construction												

IX. MINIMUM REQUIREMENTS FOR A CONSTRUCTION SAFETY AND HEALTH PROGRAM FOR THE PROJECT BEING CONSIDERED

General Requirements

No Contractor or subcontractor shall require any employee to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to his health or safety.

In order to meet this general requirement, the contractor must:

1. Initiate and maintain programs (written or otherwise) to comply with this general requirement.
2. Provide frequent and regular inspections of the job sites by competent persons
 - Competent person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to prompt corrective measures to eliminate them.
3. Prohibit the use of any machinery, tool, material, or equipment that is not in compliance with applicable requirements.
4. Permit only those employees adequately trained to operate machinery or equipment.
5. Provide training for all employees in:
 - Recognition and avoidance of unsafe conditions
 - Workplace safety and health requirements
 - Applicable hazards, safe handling, and personal protective equipment necessary for handling poisons, caustics, flammables, and other harmful substances relevant to their job duties.
 - Specific hazards and procedures for entering confined spaces if applicable
6. Provide provisions for medical care and first aid.
7. Develop an effective fire protection and prevention plan.
8. Insure appropriate housekeeping measures including clear walkways and removal of combustible scrap and debris.
9. Require the wearing of appropriate personal protective equipment such as hard hats, safety glasses, steel toe shoes, or other appropriate protective equipment in all operations where there is an exposure to hazardous conditions.

10. Develop an emergency action plan covering designated actions employers and employees must take to ensure employees safety from fire and other emergency.
 - Plan must be in writing for employers with greater than 10 employees
 - All employees must be trained upon initial assignment on the parts of the plan the employee needs to know in the event of an emergency.
11. Provide access to hand washing facilities, toilets, and an adequate supply of drinking water.
12. Provide safety and health signs that are clearly visible to construction workers and public.
13. Conduct regular safety meetings.
14. Comply with the New Normal Standards.

TABLE OF CONTENTS

- I. PROJECT DESCRIPTION
 - A. Project Title
 - B. Purpose
 - C. Objectives
 - D. Limitations and Constraints
- II. CONCEPTUAL DESIGN
 - A. General Description of the Molecular Laboratory
 - B. Physical Components/Structures
 - C. Required Specification per Work Area
 - D. Project Components
 - E. Eligibility Requirements
 - F. Proposed Method of Construction
- III. PERFORMANCE SPECIFICATIONS AND PARAMETERS
 - A. Architectural Design Parameters
 - B. Structural / Civil Works Design Parameters
 - C. Sanitary / Plumbing Works Design Parameters
 - D. Mechanical Works Design parameters
 - E. Electrical Design Parameters
- IV. PRELIMINARY SURVEY AND MAPPING
- V. PRELIMINARY INVESTIGATION
- VI. UTILITY LOCATION
- VII. APPROVED BUDGET FOR THE CONTRACT
- VIII. PROPOSED DESIGN AND CONSTRUCTION SCHEDULE
- IX. MINIMUM REQUIREMENTS FOR A CONSTRUCTION SAFETY AND HEALTH PROGRAM FOR THE PROJECT BEING CONSIDERED
- X. TENDER / BIDDING DOCUMENTS, INCLUDING INSTRUCTION TO BIDDERS AND CONDITION OF CONTRACT