



PROJECT REQUIREMENTS/PARAMETERS

Project Title: **DESIGN AND BUILD OF OXYGEN GENERATING PLANT INCLUDING SUPPLY DELIVERY AND COMPLETE INSTALLATION OF MODULAR AND EXPANDABLE TYPE OXYGEN GENERATING SYSTEM, MEDICAL AIR SYSTEM AND MEDICAL VACUUM SYSTEM.**

Location: SPMC COMPOUND, J.P. LAUREL AVE., BAJADA, DAVAO CITY

Scheme: CONSTRUCTION OF PLANT HOUSING INCLUDING INSTALLATION OF OXYGEN GENERATING SYSTEM

Project Duration: 120 CALENDAR DAYS

General Parameter: PROPOSED CONSTRUCTION OF OXYGEN GENERATING PLANT INCLUDING SUPPLY DELIVERY AND COMPLETE INSTALLATION OF MODULAR AND EXPANDABLE TYPE OXYGEN GENERATING SYSTEM, MEDICAL AIR SYSTEM AND MEDICAL VACUUM SYSTEM.

Specific Requirements:

1. **Details of the design shall include, but not limited to the following hospital requirements (Total Floor Area = at least 300 sqm.)**

- I. **GROUND FLOOR: Total Floor Area = 200 sqm.**

1. MAIN PLANT AREA
2. ELECTRICAL ROOM
3. MECHANICAL ROOM
4. REFILLING STATION AREA
5. MANIFOLD AREA
6. TANK STORAGE AREA
7. TRANSFORMER PAD WITH POWER HOUSE
8. GENSET PAD WITH HOUSING
9. TOILET MALE/FEMALE
10. BIOMED WORKSHOP

- II. **MEZZANINE FLOOR: Total Floor Area = at least 100 sqm.**

1. CONTROL & MONITORING ROOM
2. BIOMEDICAL WORKSHOP
3. HALLWAY
4. TOILET MALE/FEMALE
5. STAIRWAY

III. MODULAR AND EXPANDABLE TYPE OXYGEN GENERATING EQUIPMENT
(Capacity to produce at least 800 cylinders per day)

*** Air Compressors (At least 4 units)**

- Screw type
- Oil injected
- Variable speed drive (for energy conservation)
- Air delivered must be at least 120% of the consumption of oxygen generator (To compensate the influence of the ambient temperature and tolerances on the air compressor performance).
- Must be able to produce a total flow of at least 2975 m³/hr.
- With air filter to trap unwanted particles, removal of bulk water with automatic drain

***Refrigerated Air Dryers (At least 4 Units)**

- Tropical Version
- With Aluminum Heat Exchanger with built-in automatic condensate (for removal of water vapor)
- Air Flow Capacity of at least 1000 m³/hr.
- Pressure Dew Point of 3 -5 degrees Celsius
- Refrigerant - R134a

*** Compress Air Receiver tank (At least 2 units)**

- Vertical, Carbon Steel with all safety accessories and approvals
- At least 4000 liters capacity
- Maximum Pressure of at least 11 bar
- Color RAL5012 (blue)
- With pressure relief valve, manual drain valve, pressure gauge
- With PED 97/23EC approval (Standard for pressure equipment)

*** Oxygen Buffer tank (At least 4 Units)**

- Vertical, internal Teflon coating
- At least 3000 liters capacity
- Maximum Pressure at least 11 bar
- Color RAL9010 (off white)
- With pressure relief valve, manual drain valve, pressure gauge
- With PED 97/23EC approval (Standard for pressure equipment)

***Oxygen Storage tanks (At least 2 Units)**

- At least 3000 liters capacity
- Maximum Pressure of at least 11 bar
- Color RAL9010 (off white)
- With pressure relief valve, manual drain valve, pressure gauge
- With PED 97/23EC approval (Standard for pressure equipment)

***Filters (After compressor) 4 Units, (Before and after dryer) 8 Units**

- Can remove of bulk water and solid particles down to 0.1 micron
- With automatic drain
- Can accommodate air flow of at least 1000 m³/hr.

- With borosilicate microfiber filter element
- ISO 8573-1
- Residual oil content of less than 0.1 mg/m³

***Filters (Before Compress air receiver tank) 4 Units**

- Can accommodate air flow of at least 1000 m³/hr
- With hopcalite and borosilicate microfiber filter element (reduction of carbon monoxide and solid particles)

***Filters (Before oxygen generator) 4 sets**

- 3 stage filter of Micro filter, Sub micro filter and activated carbon
- Residual oil content of less than 0.005 mg/m³
- With borosilicate microfiber filter element and active carbon

***Filter (Before medical oxygen pipeline) 1 Unit**

- Sterile Filter for bacteria and impurities

*** Oxygen Generator system (Capacity of at least 800 Cylinders/day)**

- Modular, Bank and expandable Type
- Oxygen purity of 93% to 99% (As per FDA Circular 2014-018)
- Total flow of at least 185 m³/hr
- Silent type (shall not exceed 80 decibels on plant vicinity)
- With touch screen panel view for display and control system
- With electronic product oxygen flow meter
- With safety valves for appropriate pressure level

***Piping System**

- Aluminum Material
- Modular Type
- Maximum pressure limit of 15 bars
- Maximum temperature of 120 degrees Celsius

***Medical Gas Monitoring Device (To be placed inside monitoring room)**

- Touch Screen
- Can display oxygen purity
- Can display carbon monoxide in parts per million
- Can display carbon Dioxide in parts per million

IV MEDICAL AIR SYSTEM (Dual System)

*** Air Compressors (At least 2 units)**

- Total flow of 92.5 m³/hr. (400Cylinders/day)
- Compressor with air filter
- With wet air tank
- With filter 1 and 0.1 microns
- With automatic condensate drain
- With medical desiccant air dryer
- With compress air filter 1 and 0.1 microns

- With dry air tank
- With Sterile filter

V MEDICAL VACUUM SYSTEM (Dual System)

*** Medical Vacuum Pump System**

- Vacuum Pump Capacity of at least 7000L/min
- With Receiver tank
- With air inlet filter, manual drain valve
- With check valve and pump isolation valve

VI OTHERS

- Provision of new Electrical Supply system such as complete supply, delivery and installation of panel boards with appropriate capacities, wires/cables and accessories like cable trays, panels including supply of back-up power generator set and distribution power transformer and line accessories dedicated to oxygen plant premises.
- Provision of five (5) manpower 24/7 for two (2) year operation.
- Provision of refilling station
- Provision of at least 300 units cylinder tanks
- Provision of refilling station (At least 256 cylinders/day Capacity)
- Provision of at Least 2 units (15 x 15) Manifolds
- Provision of Wearable Parts for 2 years
- Provision of complete pipings going to Eye Institute, Trauma Institute, Isolation Buildings and KTI Building.
- Provision of Back-up Power Generator (At least 750KVA with ATS or whatever suitable capacity based on the plant electrical load)
- Provision of Transformer Pad and 3x333KVA Distribution Transformer and complete installation of line hardwares required by DLPC.
- Provision of necessary licenses and permits including payments.

2. Design Output & Plans:

a. Architectural Requirements

i. Plans

1. Perspective, Vicinity Map, & Site Development Plan
2. Floor Plans with Area Tabulation & Schedule of Finishes
3. Elevations & Sectional Views with Specifications
4. Reflected Ceiling Plans
5. Schedule of Doors & Windows
6. Stairwells Detailed Plans, Elevations & Sections
7. Detailed Plans of Comfort Rooms
8. Detailed Plans of Counters & Cabinets

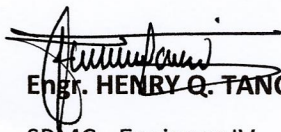
ii. Specifications

- b. Structural Requirements
 - i. Soil Investigation Report
 - ii. Structural Analysis & Design Report
 - 1. Superstructure: Steel, Reinforced Concrete, or Composite Framing
 - 2. Substructure: Reinforced Concrete Foundation
 - iii. Plans
 - 1. Construction Notes
 - 2. Foundation Plan & Details
 - 3. Schedule of Columns with Details
 - 4. Schedule of Beams with Details
 - 5. Floor Framing Plans
 - 6. Schedule of Floor Slabs with Details
 - 7. Roof Framing Plan & Details
- c. Electrical Plans
 - i. General Notes & Standard
 - ii. Specifications
 - iii. Lighting Layout
 - iv. Power Layout (Hospital Grade)
 - v. Schedule of Electrical Load and Design Computation
 - vi. Single Line Riser Diagram
 - vii. Transformer and Generator Installation Layouts
 - viii. Auxiliary System
 - 1. Structural Cabling / LAN Layout
 - 2. Telephone/PABX System
 - 3. Security/CCTV System
 - 4. Fire Alarm System
 - 5. Public Address Paging System
- d. Mechanical Plans
 - i. General Notes & Standards
 - ii. Specifications
 - iii. Fire Protection System & Fixtures
 - 1. Fire Protection Plans & Details
 - 2. Water Storage Tank Plan & Details
 - iv. Medical Gas Lines Layout (Oxygen, Medical Air & Vacuum)
 - v. Air-conditioning & Ventilation System (HVAC)
 - 1. Mechanical Layout per Floor
 - 2. Detail of Mechanical Fixtures
 - 3. Schedule of Loads of Mech. Fixtures
- e. Plumbing Plans
 - i. General Notes & Standards
 - ii. Specifications
 - iii. Waterline Layout
 - iv. Sanitary & Drainage Layout
 - v. Isometric Layout
 - vi. Septic Vault Plans & Details
 - vii. Catch Basin Plans & Details


Prepared by:

ADHOC Planning and Technical Team

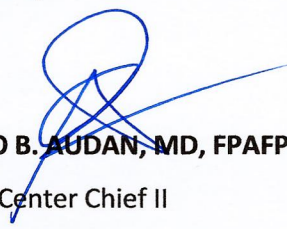
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