1. General

**Manifold Room**
- Manifold Room should be located at the Ground floor and should have accessibility to transport.
- Manifold Room should be well ventilated with wide shutter and ramp for easy handling of gas cylinders. Height of Manifold room should be 1m from the road/Ground for ease of handling of gas cylinders.
- IPS flooring with hardened surface (Ironite flooring)/CC/Kota flooring should be made
- Electrical wiring with proper earthing facility should be provided for running of Control panels of the gases and the light & Fan in the Manifold Room.
- Arrangement of fire extinguisher shall be fitted at the accessible points inside the Manifold room with Gas Bank.
- Manifold system with Automatic Control Panel for Oxygen, Nitrous, CO2, Piping network, Gas Cylinders, NRVs, pressure gauges and Master Alarms.

**Plant Room**
- Plant Room should be located adjacent to the Manifold Room at the Ground floor or at the basement separately.
- Plant Room should be well ventilated with wide shutter and ramp for easy handling of gas cylinders.
- IPS flooring with hardened surface (Ironite flooring)/CC/Kota flooring.
- Electric Control Panel with proper earthing facility for power supply should be in the Plant Room.
- Electrical wiring with fitting of MCB/MCCB should be at the location of the plant & machineries, lights and fans as per the approved layout of Plant Room.
- Plant Room consists of Control Panel, Compressed air system consisting of Air Compressors with filter & dryer, Receiver tank, Vacuum system consisting of Vacuum Unit with filters and Receiver Tank and AGSS consisting of Vacuum pump and control Panel.

**Liquid Medical Oxygen**
- Liquid Oxygen area should be installed on the hard concrete surface with Wire mesh boundary (2m high) in the open air. All gates should be opened outwardly.
- All Drains in the vicinity should be covered.
- Overhead power lines if any within 4m should be shifted away.
- Underground pipelines/cables should be rerouted.
- Earthing of the vessel and conveying pipelines should be properly done
- No inflammable and heat emitting units should be kept in the close vicinity of the LMO area. Such area should have accessibility of transport for refilling of Oxygen.
- For 10/20KL tank the defined area shall be 15m x 9m.
- Installation of LMO tank should need clearance certificate from CCOE for LMO tank and installation site.
- Fire extinguisher (2 x 10kg) and sand bucket should be provided
  No smoking and No naked lights notice should be displayed in local language and symbol.

**Copper Pipeline line system**
- Medical graded copper pipeline of various diameters as per BS EN :13348: 2008 for different gases should be laid down above the false ceiling at the corridors, wards, ICUs, HDUs and OTs of the building as per approved layout.
- Copper pipes for different services should have different colour coding as per the International/IS: 2379 standard maintained in the system.
- Shaft as a vertical Riser should be there in the building at the nearby place of Plant and Manifold Room for Pipeline connection with each floor of the building. Such Shaft should not have electrical line, Steam pipe line and Gas pipe line.
- Nitrogen purging during brazing and leakage testing should be made during laying of pipeline.
- Valve Box and Alarm system in a sealed box should be installed at the corridor side of the entrance doors to a department/ICU, OT etc. and at the convenient height for operation and maintenance. Each OT ICU, HDU and ward floor needs dedicated Valve Box and Alarm system.

In Medical Gas Manifold System, Oxygen, Nitrous, Corbon-di oxide, Medical air, Surgical air, Nitrogen are supplied and Vacuum system and AGSS provided to Wards, Diagnostic areas, OTs and ICUs, HDUs.
TYPICAL LAYOUT FOR
GAS MANIFOLD
& PLANT ROOM