OPERATION THEATRE COMPLEX–

- OT Complex is divided into four following zones:
  
  - **ZONE 1– PROTECTIVE**
    Reception, Waiting, Trolley Bay, Change Rooms, Rooms for administrative staff, Stores & Record and Conference Room
  
  - **ZONE 2– CLEAN AREA**
    Pre Operative, Post Operative, Plaster Room, Staff lounges, Stores
  
  - **ZONE 3– STERILE AREA**
    Operating Theatre, Scrub Room, Anesthesia Room, Setup Room
  
  - **ZONE 4– DISPOSAL AREA**
    Dirty Utility, Disposal areas from each OT & Corridor leading to disposal zone, Disposal Corridor

- OT Complex should have unidirectional flow movement.
- OT complex should have One entry and One exit
- No criss-cross of the movement inside the OT complex.
- Double door airlock should be at the entry and exit of the OT Complex.
- Dirty corridor should be leading to Dirty lift/Dirty Dumb waiter/Dirty tube. Clean corridor also leading to Clean lift/Clean Dumb waiter. Dirty lift/Dirty Dumb waiter/Dirty tube should preferably at nearby place of the dirty area of Bio Medical Waste area, Laundry and CSSD. Sink should be fitted in the Dirty corridor.
- OT should be linked to the Dirty corridor through Pass Box/Hatch Box. Clean corridor is linked to the OT through door.
- Pre-OP and Post OP Rooms should be placed as such that there will not be any criss-cross of the Pre and Post Op patient.
- Entry into Pre-Op should preferably be at the entry Airlock of the OT complex
- Scrub Room should preferably in between OT or at the nearby place of OT. Scrub room should always be equipped with plumbing line for supply of water and drain line for outflow of the water from scrubber.
- One TSSU room should be within the OT complex. TSSU room should be well ventilated and equipped with plumbing system and drainline.
- OT complex should not have any toilet inside the clean area. Toilet should be before entry to the change room.
- No toilet should be placed in the upper floor of the OT
- Seepage or dampness inside the OT should not be present.
- OT complex should have auto sliding door or double swing door with vision panel at the entry and exit for ease of movement.
OPERATION THEATRE

- Major OT/Modular OT/Normal OT room should preferably be Square (6m x 6m)
  Height of concrete ceiling preferably > 4m for effectiveness of Laminar flow
  system avoiding convenient pockets of stagnant air caused microbial growth and
  for better asepsis.
- There should not be any projected portion or any sharp corner of column/wall
  inside the OT. Double brick wall/wall panel should be made to cover-up
  projection of column.
- Anything to be fixed on wall should be flushed on the wall.
- There should not be any shaft inside the OT
- No sewage/drain pipe should be inside the OT
- No fire pipe and sprinkler should be inside the OT
- The beam inside the OT should be avoided for convenience of fitting of internal
  ducting and installation of Laminar Plenum.
- The area of the OT for CTVS, Hybrid and Robotic surgery should be ≥8.0m x
  8.0m x 4.0m H.
- Each OT must have Scrub station and Anti Room in its adjacent for regulating
  traffic in OT.
- Each OT should have one for patient entry and another for doctor’s entry from
  Scrubber’s room.
- Location of the door of OT for patient entry should be in the middle of wall and
  the Sliding door from the Scrubber side must be at least 1m away from each
  corner of the Room for placement of Return air ducts at the corners.
- Each major/modular OT should have preferably one hermetically sealed window
  (1500 x 1500) with blinds to prevent claustrophobia of the Surgeon and other OT
  staff and it should preferably be opened towards outside the building. OT window
  should be flushed to inside wall of the OT.
- Internal ducting inside OT should be of prefabricated Aluminium insulated with
  Nitrile Rubber/Polyethylene
- AHU should be of double skinned PCGI wall with corner coving and VFD.
- Exhaust cabinet should be equipped for ease of fumigation in OT
- If wall panel is not used in OT, the return air ducts at the four corners should be
  covered with Corner panel and coving or Brick wall and coving.
- SS-304 Grill with inclined fins should be fitted at the entry of return air duct. Such
  grill in each return air duct should be fitted at its top and bottom.
- Door preferably shall be Automatic Hermetically sealed sliding door of HPL
  board with vision panel-300 x 300 mm for Modular OT/Major OT and Double
  leaf hinge typed flushed door of PCGI/SS-304 material with vision panel-300 x
  300 mm for Major OT/Normal OT/Minor OT. Double Leaf.
• Every OT should have dedicated AHU of more than 4500 CFM capacity. AHU for OT should be placed in the nearby of OT to prevent energy consumption.
• Flooring of OT should be made with 2 mm thick antistatic PVC Roll/Tile/Epoxy coating. The floor finish should pass over a concealed cove former and continue up the wall upto 100mm.
• Copper grounding strip (0.05 thick, 50 mm width) should be laid flat on the floor in the conductive adhesive and connect to copper wire of grounding. One earthing Copper lead should be brought out of from every 150 Sq.ft. area and attaching it to main earthing Copper strip/ground.
• OT wall/ Metallic panel should be coated with antibacterial/epoxy painting by 300 micron thickness.
• Wall and Ceiling Panel may be Stainless Steel (SS-304)/EGP/SMS.
• Sealed (Air tight) Peripheral light with dimmable facility shall be required to generate 500 Lux inside the OT. LED light (2’x1’) /Fluorescent lights with anodized Aluminum reflectors and optical antiglare system for adjustable light distribution.
• Laminar flow system with two mono filament precisely woven polyester sheet and terminal HEPA filter of 0.3micron should be installed in the Major/Modular OT. Laminar plenum with built-in light may be optional.
• Laminar size shall be 2400 x 2400 mm or 2400 x 1800 mm to be fitted at the centre of the OT room

Required condition of air management in the Modular OT (Super specialty OT)

- Classification - 100 (particles measuring 0.5 microns or larger/cu.ft as per NABH for Super specialty OT)
  - Bacteriological class - B (5 CFU/ m³)
  - Particle decontamination kinetics - 5 min
  - Biological decontamination kinetics - 5 min
  - GMP Annex I classification - Class A
  - ISO 14644/1/NABH classification - ISO 5(at rest condition)

• The air quality at the supply i.e at the grill level should be class 1000 (particles measuring 0.5 microns or larger/cu.ft as per NABH) /ISO class 6(at rest condition) for General OT.
• 25 ACPH with 5 fresh should be mentioned inside the OT
• OT should be kept under positive pressure (15 pascal) as per ISO 14644
• The temperature at 21 +/- 3 Deg C with corresponding relative humidity between 40 to 60% should be maintained inside the OT all the time.
• Medical Gas pipeline system with medical graded copper pipeline and Gas outlets should be fitted inside the OT.
• OT should be equipped with the following equipment/items in Modular OT package.
  • Anaesthetic Pendant (To be fitted at the right and Top of the head end of the patient)
• Surgeon Pendant (To be fitted at the left and bottom of the foot end of the patient)
• LED OT Light (To be fitted at the centre of the OT Room)
• Surgeon Control to be flushed on the OT wall
• X-Ray viewer to be flushed on the OT wall
• Writing Board to be flushed on the OT wall
• Built in storage cabinet to be flushed on the OT wall
• Pressure relief dumper to be placed to the clean corridor.
• Pass Box to be flushed on the OT wall and to be connected with Dirty corridor.
• A Scrubber made of SS-304 material should be installed in the scrubber room adjacent to OT. The Scrubber sink should be 2/3 bay equipped with thermostatic control hands free operation through infra-red sensors and have manual foot and operation mode.

Integrated Modular OT

• Integrated Modular OT should have above requirement of Modular OT
• Integration of equipment inside the Modular OT
• Integration of Modular OT with the Conference Room, consultant room and outside hospital

Integration requires following features in the OT:

• Digital Display Monitor
• Audio Visual communication system
• Central Control System
• High definition Monitor for Image data management system
• PTZ camera

Minor OT

• Size of Minor OT may be same as/ smaller than the Major OT
• Antistatic Epoxy/ PVC flooring
• Antibacterial/Epoxy painting on wall and ceiling
• Corner coving
• SS-304/EGP ceiling with heat insulation
• Sealed (Air tight) Peripheral light with dimmable facility shall be required to generate 500 Lux inside the OT. LED light (2’x1’)/Fluorescent lights.
• Diffusers for supply air shall be placed at the centre of the OT and diffusers for return air at the periphery inside the Minor OT.
• The temperature at 21 +/- 3 Deg C with corresponding relative humidity between 40 to 60% should be maintained inside the OT all the time.
• Medical Gas pipeline system with medical graded copper pipeline and Gas outlets should be fitted inside the OT.
• Double leaf Hinge door(SS-304/PCGI) with view panel
- LED/Halogen ceiling light light to be placed at the centre of the OT room.
- Sealed window with blinds

**Works sequence in OT after inside plastering is as following:**

1. Coating of cement primer at the concrete ceiling and the walls inside the false ceiling
2. Internal ducting including supply air and return air ducting and fitting of Laminar plenum
3. Fitting of OT light Bracket and Pendants’ brackets
4. Laying of Gas pipelines
5. Wall paneling and False ceiling
6. Fitting of hermetically sealed window and other equipment, OT Light and Pendants
7. Wall painting
8. Antistatic flooring
9. Fitting of Hermetically sealed sliding door
10. Fitting of Scrubber