

FORTA PRO

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W E B U I L D M O D U L A R



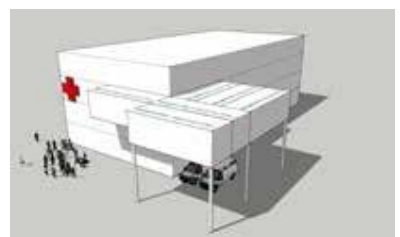
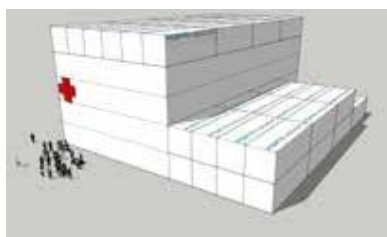
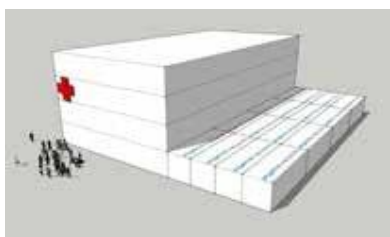
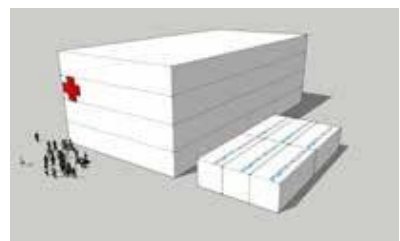
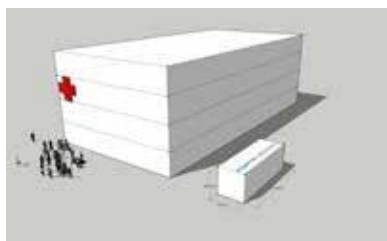
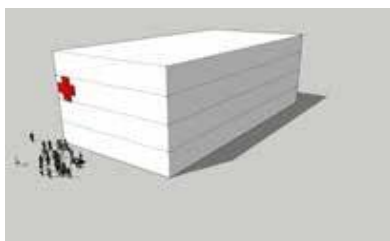
LOOKING FOR INTELLIGENT BUILDING SOLUTION?

INTERESTED IN “MEDICAL GRADE” FACILITY?

SAVE TIME AND MONEY?

APPRECIATE “GREEN BUILDING”?

OUR PROVEN COST-EFFECTIVE CONSTRUCTION  
METHODOLOGY CAN ADDRESS  
YOUR EXPECTATIONS



## Table of Contents

OUR PROFILE	7
WHAT IS A PREFABRICATED MODULAR SYSTEM?	11
TIME SAVING – REDUCED OVERALL CONSTRUCTION TIME	12
OVERALL COST SAVINGS	12
MINIMIZING ENVIRONMENTAL IMPACT OF THE CONSTRUCTION PROCESS ON THE SITE	13
SAFER CONSTRUCTION ENVIRONMENT	17
TYPICAL MODULES DIMENSIONS	19
INPATIENT DEPARTMENTS	21
INPATIENT UNIT	22
INTENSIVE CARE UNIT	24
EMERGENCY CENTER	26
OPERATING ROOM DEPARTMENT	29
DAYCARE CENTER	30
MEDICAL DIAGNOSTIC CENTER	32
MEDICAL WASTE AUTOCLAVE MODULAR UNIT	36
MRI UNITS	37
OTHER MODULAR SOLUTIONS	38
BATHROOM UNITS /WC PODS	40
ELDERLY PEOPLE HOME	41
TECHNICAL DESCRIPTION	42







## Our Profile

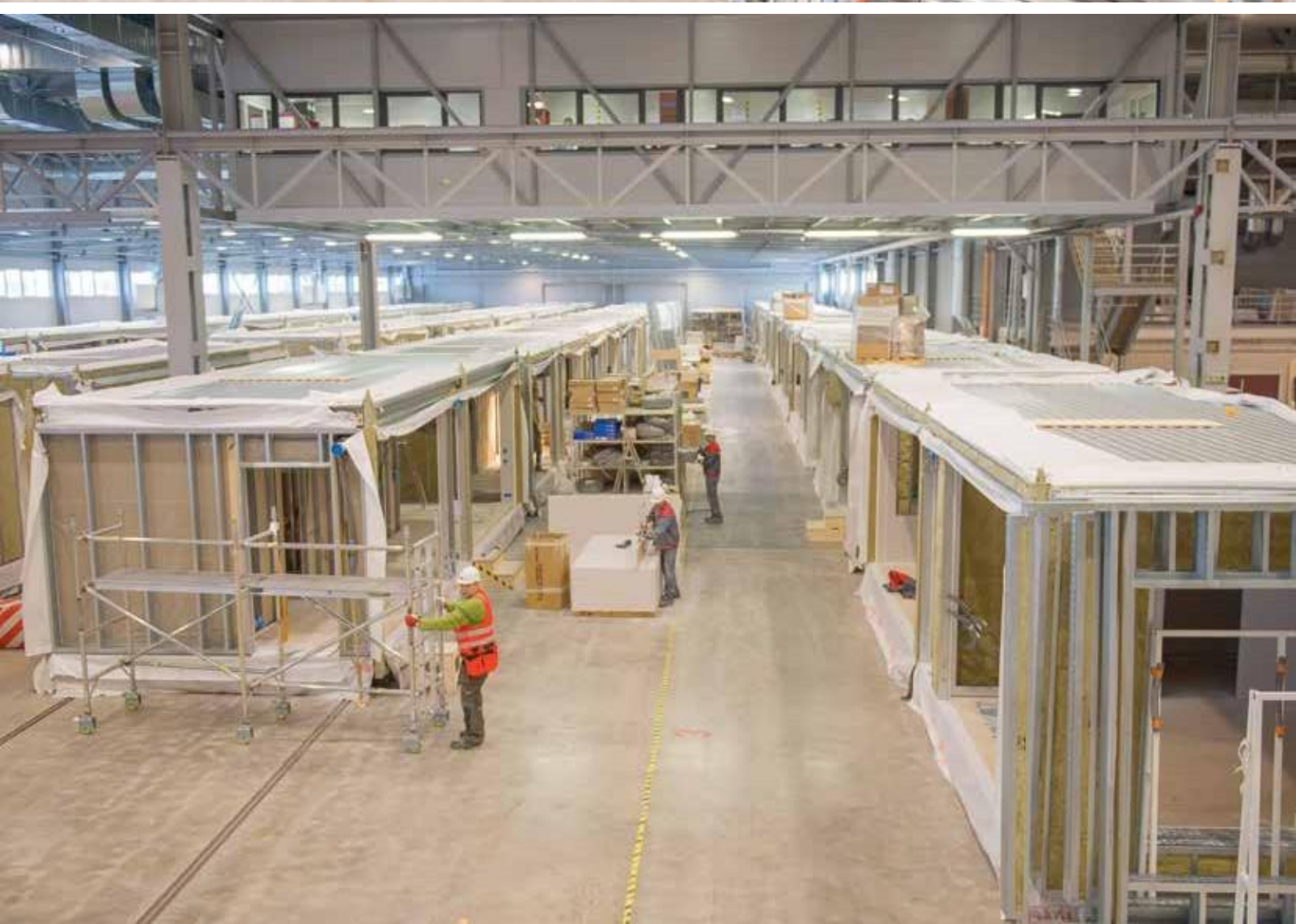
Forta Pro features advanced off-site building methods offering healthcare facilities in a fast-track modular and construction solution with minimal disruption to the surrounding facilities operation. The advanced factory prefabrication enables Forta Pro to speed up the project timetable for the construction projects in a way which is not achievable by the on-site building technology. Strict quality control and inspection implemented in our modern factory and supported by Forta Pro multi-disciplinary professional team, provide a guaranteed comprehensive quality solution. Our modules can be defined as “Medical Grade” rooms which supports the medical activity in the facility.

Our experience involves planning, designing, construction and equipment supply to healthcare facilities with special attention to:

- Inpatient Wards
- Delivery rooms
- Intensive Care Units/High Dependency Units (NICU, PICU, MICU)
- Operating Theaters (General, Ultra clean, Septic, Hybrid)
- Outpatient clinics, Consultant rooms Day care units, Chemotherapy, Pain management, Dialysis, etc.
- Administrative space
- Physiotherapy, Rehabilitation centers
- Imaging–Radiology
- Laboratories, Logistics units and more
- Bathroom and WCPods

Healthcare is the sector which currently features the highest use of prefabricated modular constructions with the most notable growth in the future.







Our long term experience within the healthcare facility Design & Build sector ensures us to develop customized solutions from the very preliminary idea to the construction working plans, working directly with the client professional representative to address their specific needs and expectations.

For architects and owners, modular-prefabricated construction companies today can work with such levels of design and construction sophistication that will exceed all expectations, competing their conventional counterparts.

We can take a conventional design and create a modular version when required, so it's never too late to explore the possibilities.

Forta Pro can provide services with a complete turn-key package solution:

- Underground & Superstructure construction
- Exterior shell with architectural facades
- Interior civil/finishing works
- HVAC, Electricity HV, LV, Plumbing, Medical gas, Lifts, pneumatic tubes system
- Medical equipment
- Furniture (Fixed & Mobile)





Phase 1



Phase 2



Phase 3



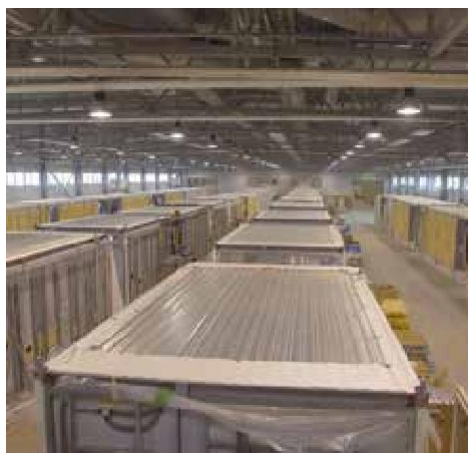
Phase 4



Phase 5



Phase 6



Phase 7



Phase 8



Phase 9



Phase 10



Phase 11



Phase 12





Based on current reality, with less than 60% on-site construction projects delivered on time and less than 50% delivered to budget, the conventional on-site building systems do not address the main challenges in the construction industry. That explains why more and more investors are currently recognizing the need for a more promising building system that would provide higher efficiency, minimize environmental disruption and guarantee higher quality and lower costs together with overall time saving.

## What is a Prefabricated Modular System?

This is a process that constructs a building off-site, under controlled plant conditions, using the same materials and designed to the same codes and standards as conventionally built facilities. Buildings are manufactured in “modules” and when put together on-site, reflect the same design intent and specifications as the most sophisticated traditionally built facility – without compromise.

Modular buildings, once assembled, are indistinguishable from their on-site built counterparts.

Structurally, modular buildings are even stronger than conventional structures because each module is engineered to independently withstand the rigors of transportation and craning onto foundations. Once together and sealed, the modules become one integrated wall, floor and roof assembly.

Building off-site ensures better construction quality management. Manufacturing plants have stringent QA/QC programs with testing protocols that promote superior quality in every step of the construction process.



Beyond quality management and quality assurance, modular construction offers many other benefits to owners, investors and users.

## Time Saving – Reduced overall construction time

### MODULAR CONSTRUCTION SCHEDULE

Design Engineering	Permits & Approvals	Site Development & Foundations Building Construction at Factory	Install & Site Restoration	Time Savings
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### SITE BUILT CONSTRUCTION SCHEDULE

Design Engineering	Permits & Approvals	Site Development & Foundations	Building Construction	Site Restoration
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## Overall Cost Savings

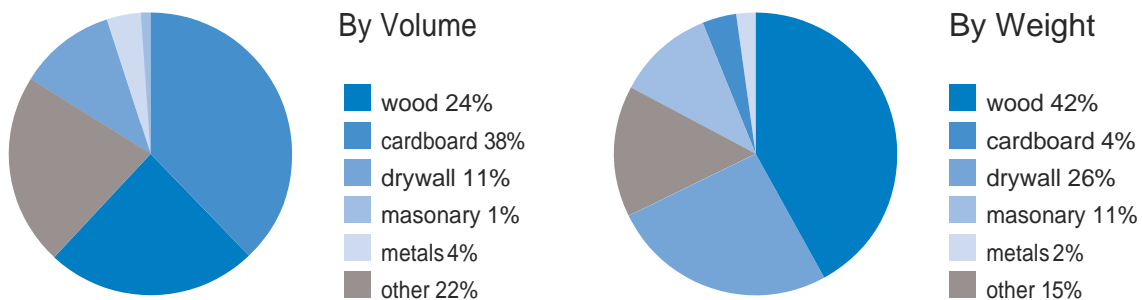
The use of prefabrication construction methodology allows cost savings at every phase of the production process due to mass production, for example: material savings at the procurement stage and labor savings at the construction phase additional savings can be associated with installation efficiencies and the standardization of the spaces.

Shorter construction time inducing lower overhead costs, earlier opening of the new facility generating higher rate of return on investment (ROI) and systematic production under strict QC\ QA, hence reduced lost material and higher efficiency are all important parameters in the overall cost savings which are induced by using the prefabricated modular construction systems.

## Minimizing Environmental Impact of the Construction Process on the Site

Protecting the health of the patients is one of the biggest challenges to hospitals and other healthcare facilities during construction. Any construction project, no matter how well managed it is, will create at least some dust and debris. While this would not present a problem in most construction sites, in a hospital, dust and debris can be life-threatening if not handled properly.

### Construction Waste



Removing approximately 80% of the building construction activity from the site location significantly reduces site disruption, noise pollution, air pollution, infection risks (infection control may be the most important consideration when it comes to hospital construction projects.) Thence, for hospitals, or other active businesses, reducing on-site construction activity and thereby eliminating a large part of the ongoing construction hazards, is a tremendous advantage.

As owners and designers look for more sustainable designs for improved environmental impact, modular construction is inherently a natural fit. Building in a controlled environment reduces waste. Waste is eliminated by recycling materials, controlling inventory and protecting building materials. This, along with improved quality management throughout the construction process and significantly less on-site activity and disturbance, promotes sustainability. Based on this evidence, the contribution of the modular prefabricated construction system to achieve “Green Building”.











## Safer Construction Environment

Safety remains a major concern for the construction management. Construction by nature has a high degree of hazardous activities. The price of construction accidents is high in terms of both Costs and suffer.

Accidents add a burden of needless and avoidable expense. Direct costs include medical cost and compensation. Indirect hidden costs include:

- Time lost from work by the injured party
- Loss in earning power, economic loss to injured worker's family
- Loss of efficiency by breaking up crew
- Cost to train new or replacement employees
- Damage to equipment and tools
- Loss of production
- Cost incurred by delays
- Overhead costs associated with disruption of work
- Clean up and repair costs
- Administrative costs of investigations and reports
- Increased insurance premiums
- Loss of future projects due to adverse publicity
- Cost of fines

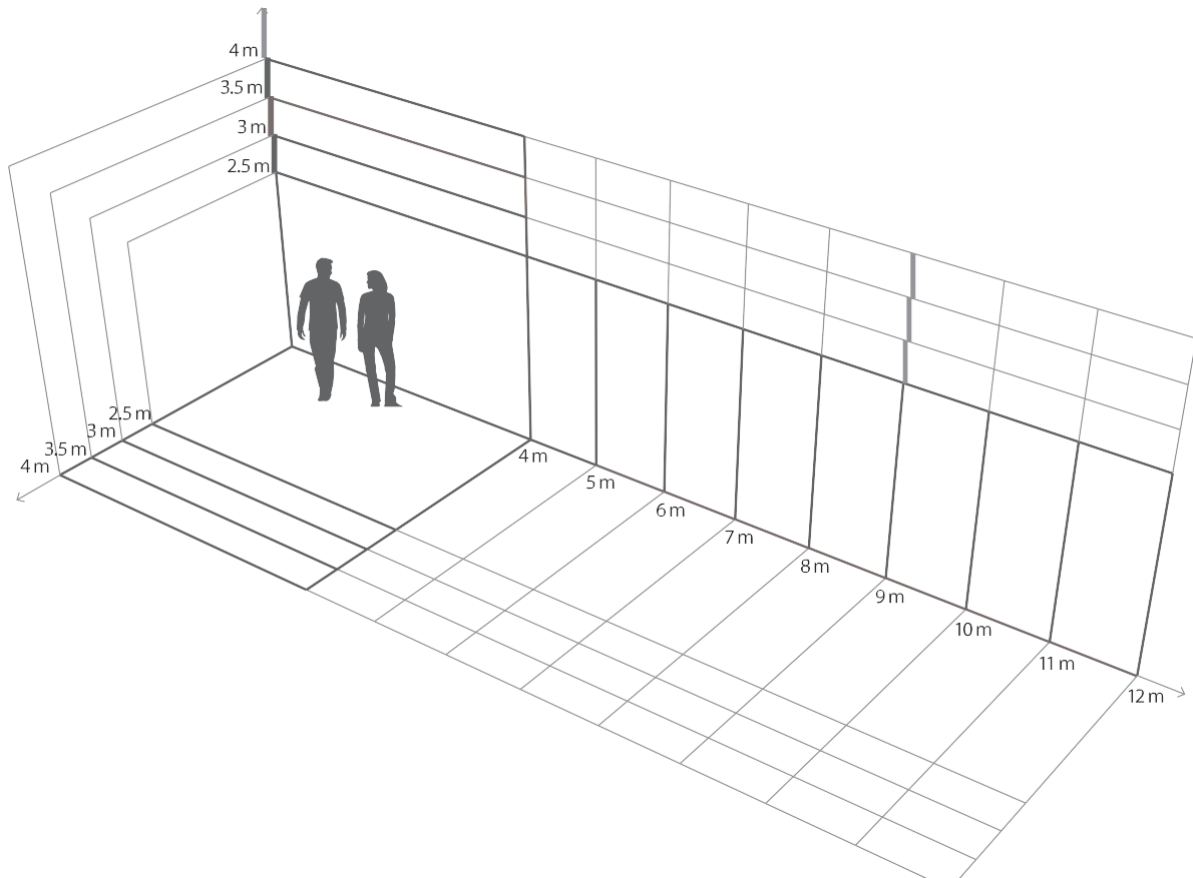
The indoor construction environment reduces the risks of accidents for workers as well as provides improved on-site working conditions, less noise and air pollution, less on-site traffic, turns the working zone into a safer environment with lower risks. Thus, giving additional value to the contractor cannot be neglected.





## Typical Modules Dimensions

Our team is offering a variety of sizes and heights to address the client's needs. Any bigger dimension can be supplied easily, as a smart combination of the basic modules!



## Inpatient Departments

Inpatient area is the part of the hospital which includes the nurse station, the patient accommodation areas, storage and public areas which are needed to carry out the nurse's activities. This department should be designed in order:

- To provide quality and efficient patient care with minimal nurse manpower
- Construction and operational costs to be the reasonable without affecting the functionality
- To provide the most desirable patient care environment
- To provide necessary amenities for visitors

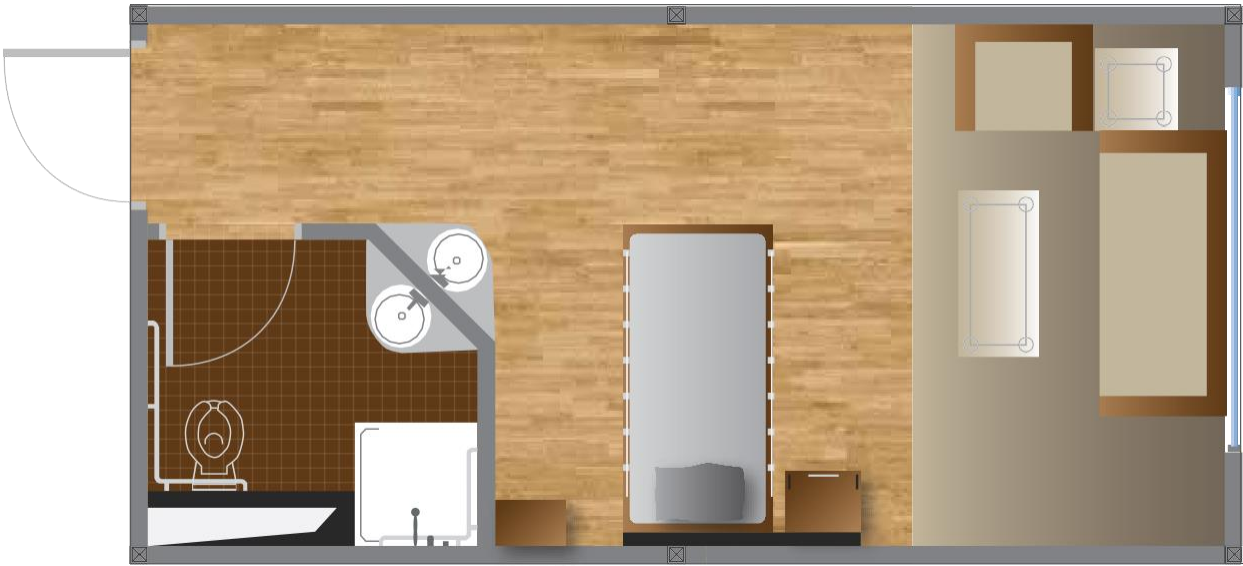
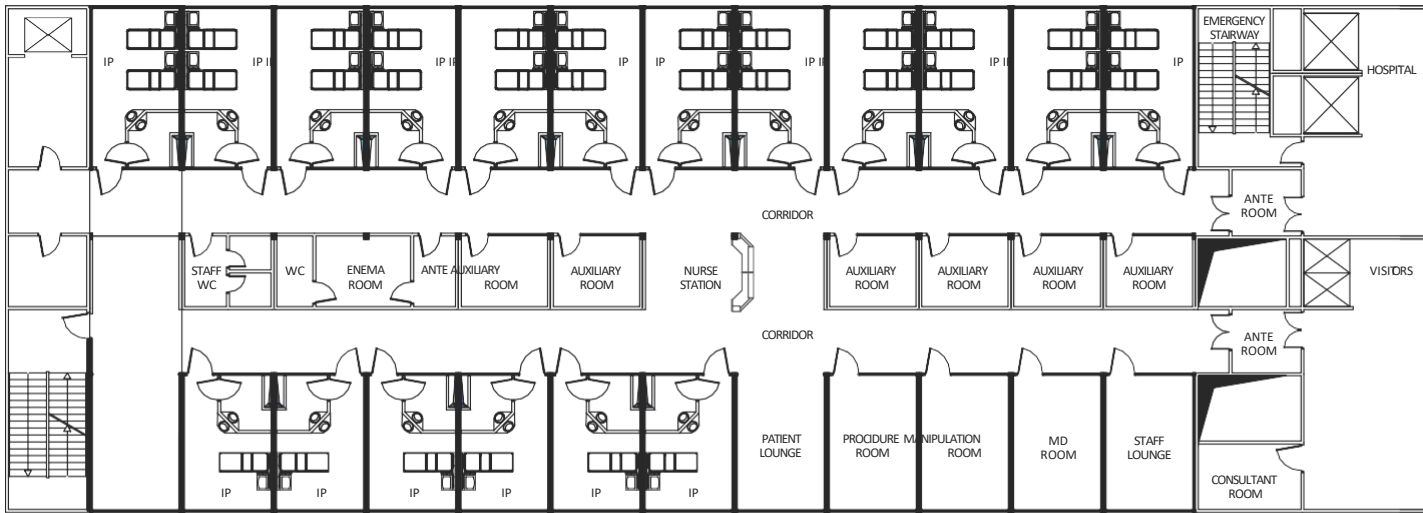
Patient wards may be of the following types:

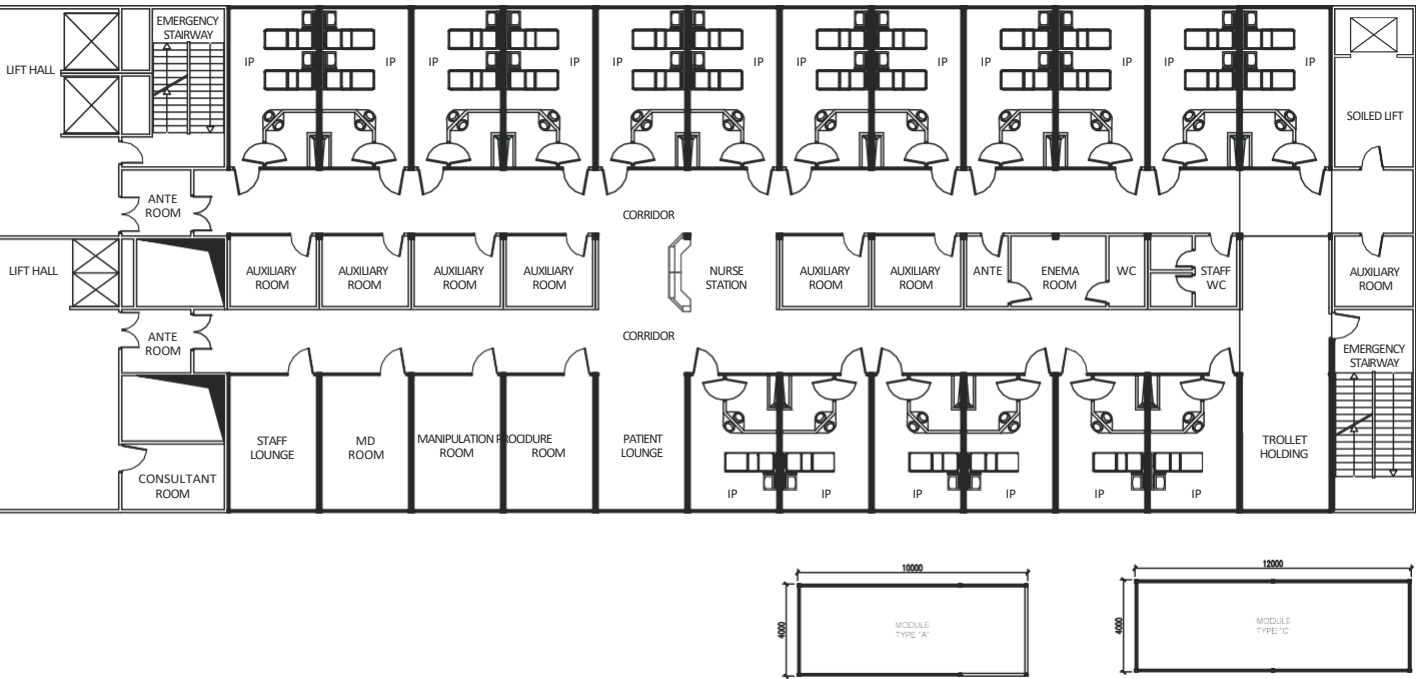
- General wards—internal and surgical wards, private wards—VIP, hotel style
- Isolation wards
- Pediatric wards
- Gynecology wards
- Postpartum (maternity) wards
- Special units (chemotherapy)





# Inpatient Unit





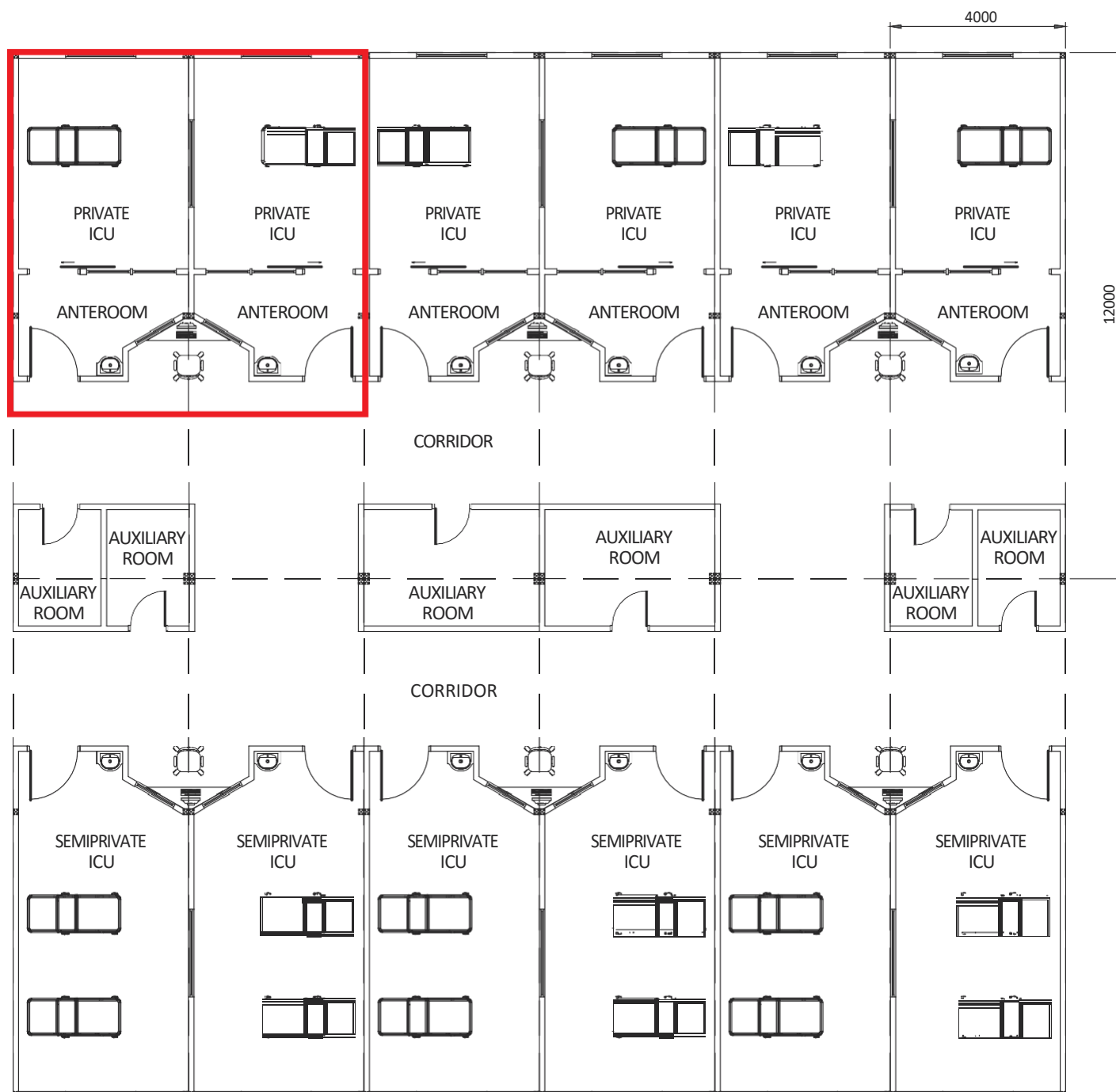
# Intensive Care Unit

Intensive Care Unit (ICU) is a dedicated facility for patients who require high levels of medical care and complex treatment.

ICU's may be multi-disciplinary or single specialty units, such as:

- Pediatric ICU
- Neurology ICU
- Burn care center/unit ICU



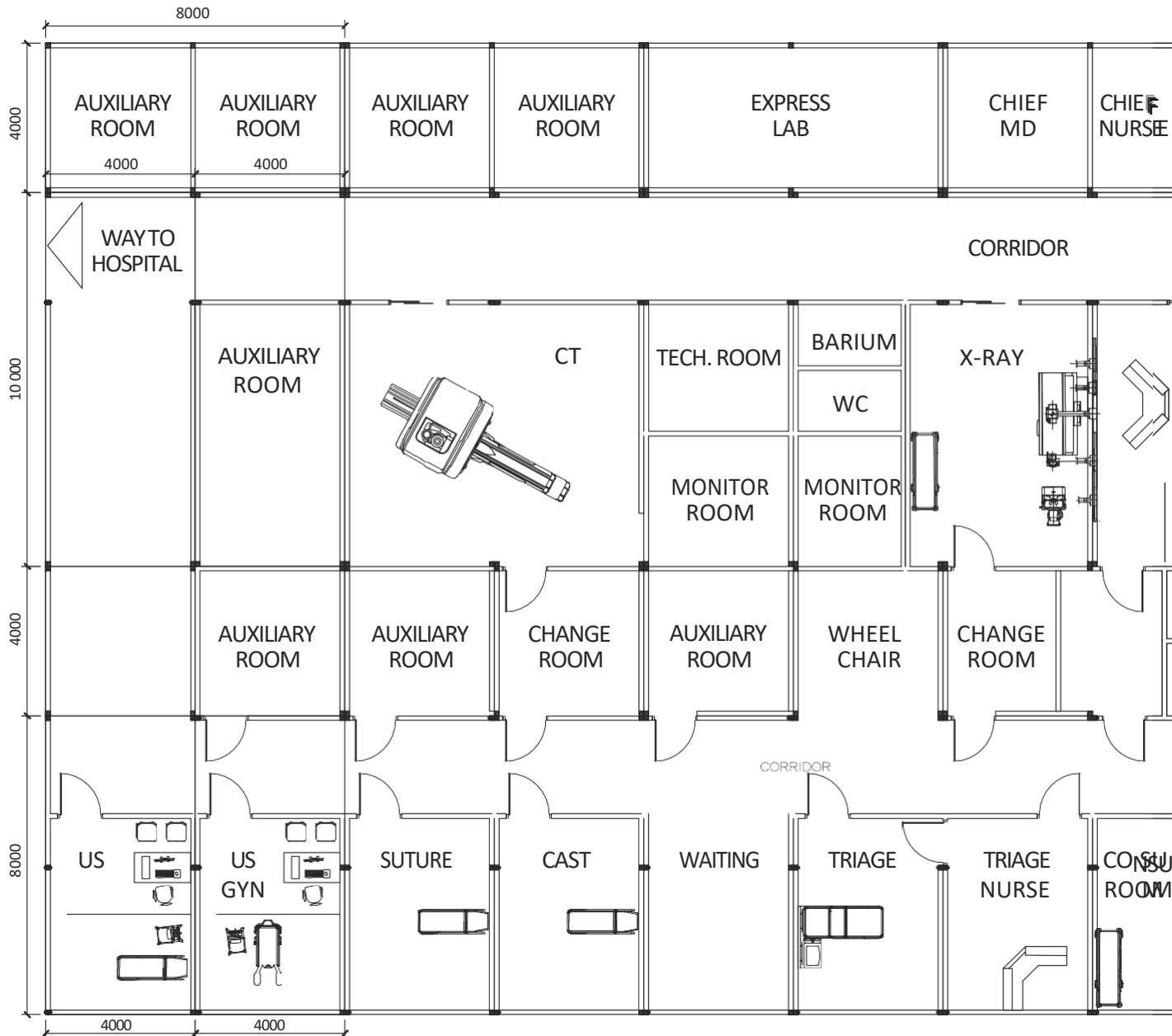


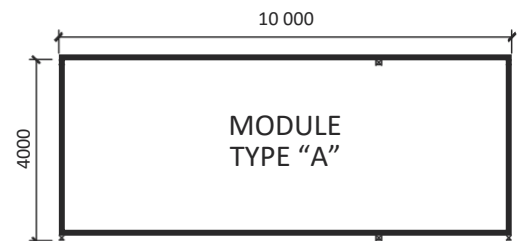
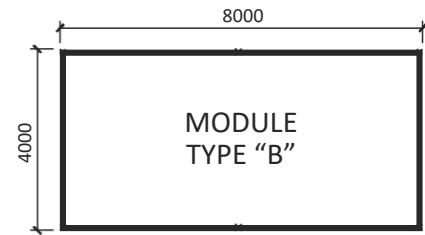
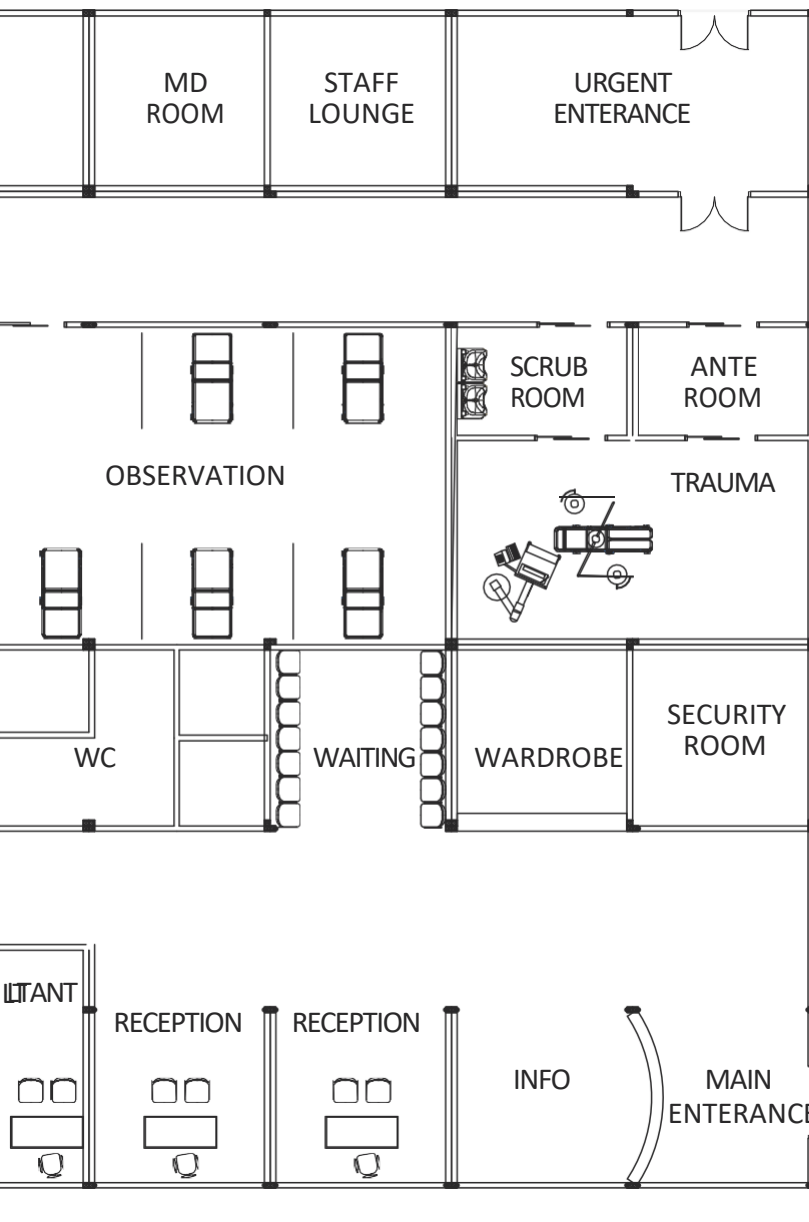
\* 1 unit consists from 2 modules. Dimensions - 8 x 10 m.



# Emergency Center

Emergency services is the “front door” of the hospital, the portal of entry that interacts with the highest volume of patients requiring critical care.









## Operating Room Department

Forta Pro offers several types of operating rooms including General Surgery and Ultra Clean Surgery. Each of these is presented in a comprehensive autonomous solution of Induction room, Scrubbing room, Operating Theatre and Technical zone.

The prefabricated solution dimensions, layouts and architectural design can be easily customized to address the clients' specific needs. The prefabricated modules can easily be installed in existing hospital with minimal interference to the daily routines. The solution can be permanent or on a temporary base, for example when renovation process is performed at the existing OT.

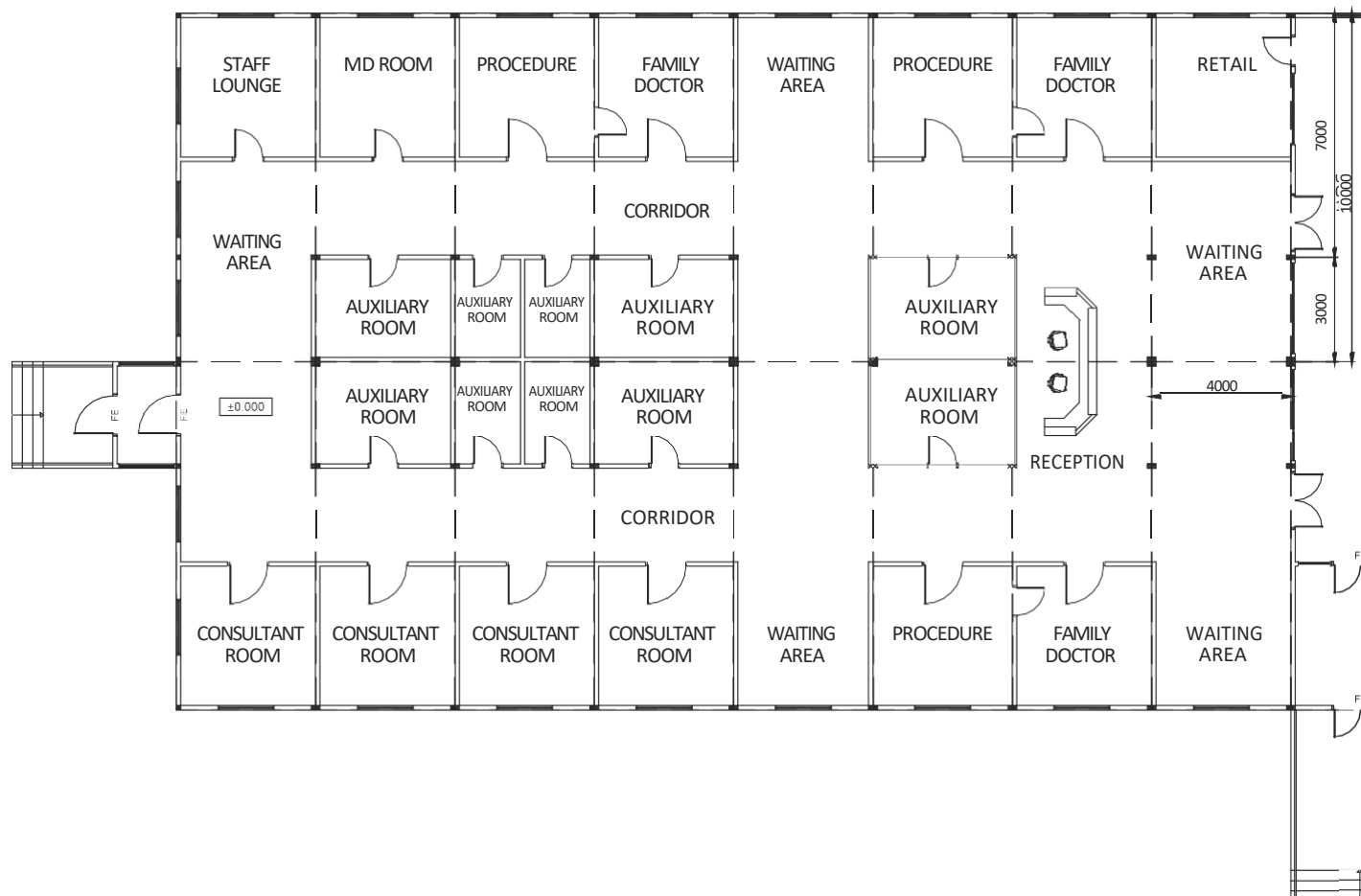
We propose rooms such as:

- Minimal invasive Procedure room
- General Surgery Operating room
- Endoscopy/Laparoscopy Operating room
- Ophthalmology and E.N.T. Operating room
- Ultra clean Operating Theaters (Orthopedic/ cardiac/ open heart/ Hybrid / Neurosurgery)
- Angiograph /Cath labs





## ADULT DEPARTMENT

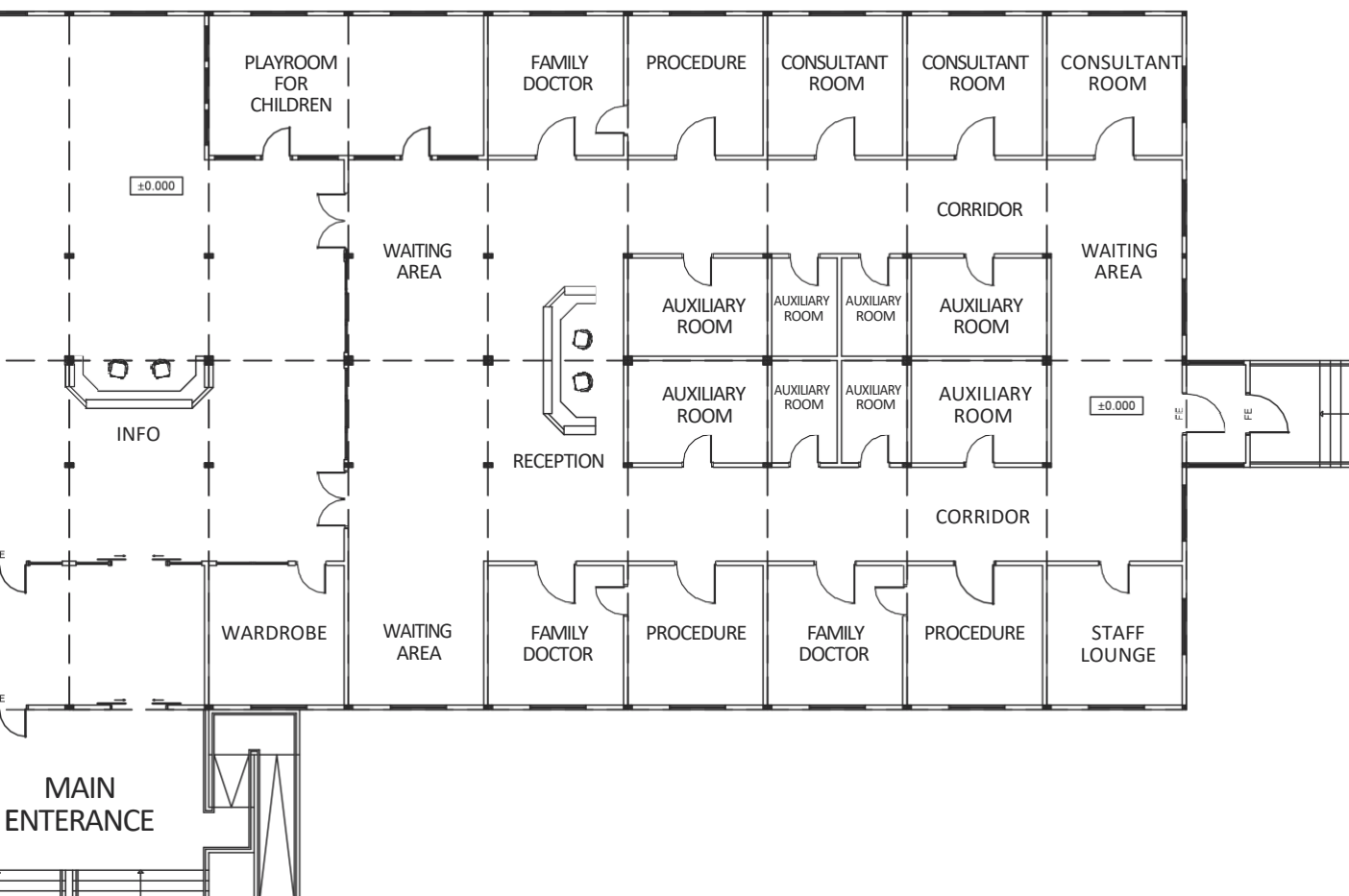




# Daycare Center



## CHILDREN'S DEPARTMENT



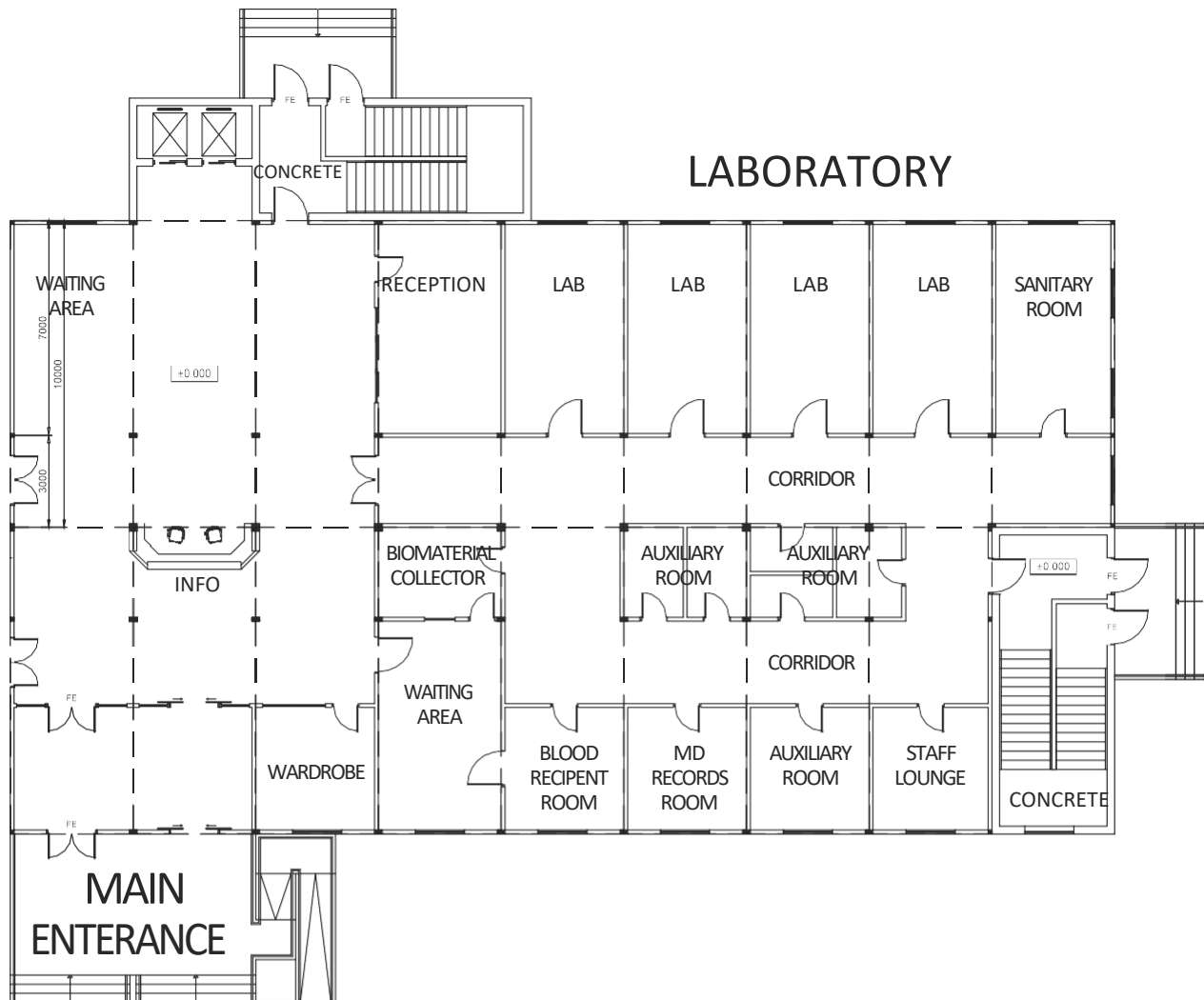




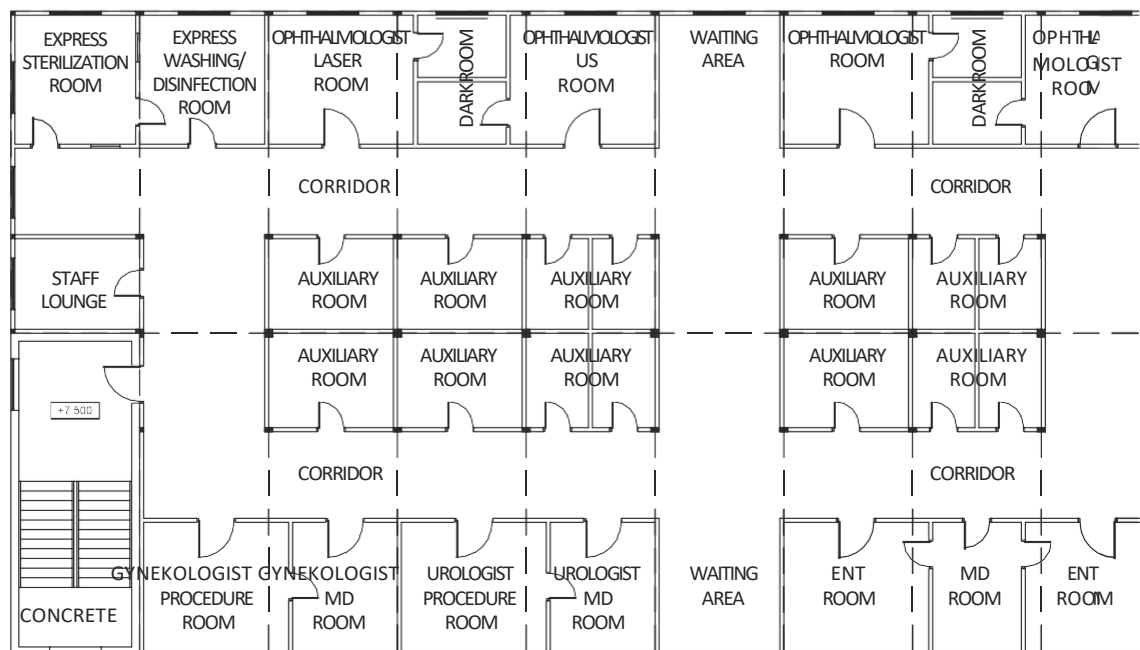
# Medical Diagnostic Center





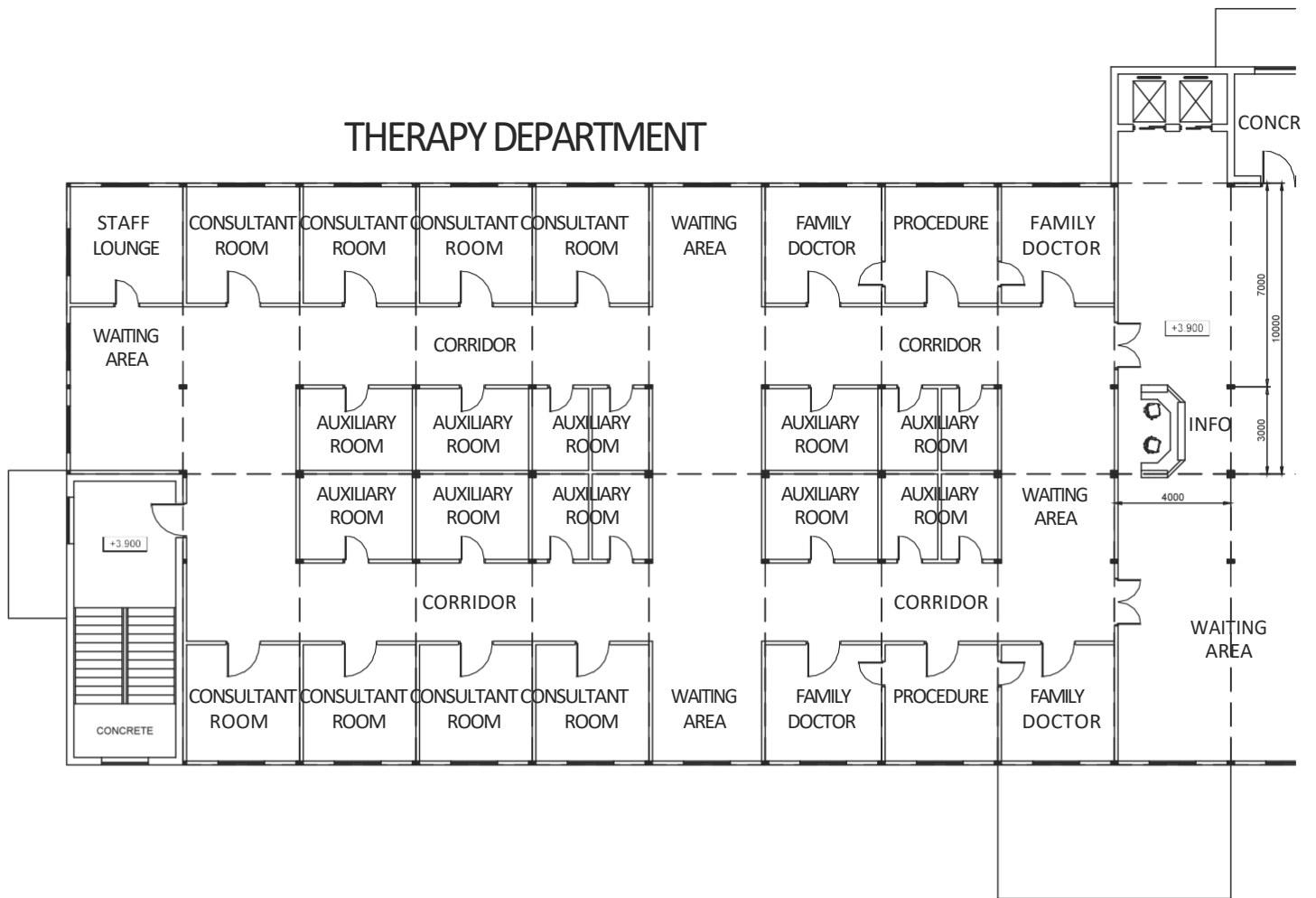


## SURGICALDIAGNOSTICS

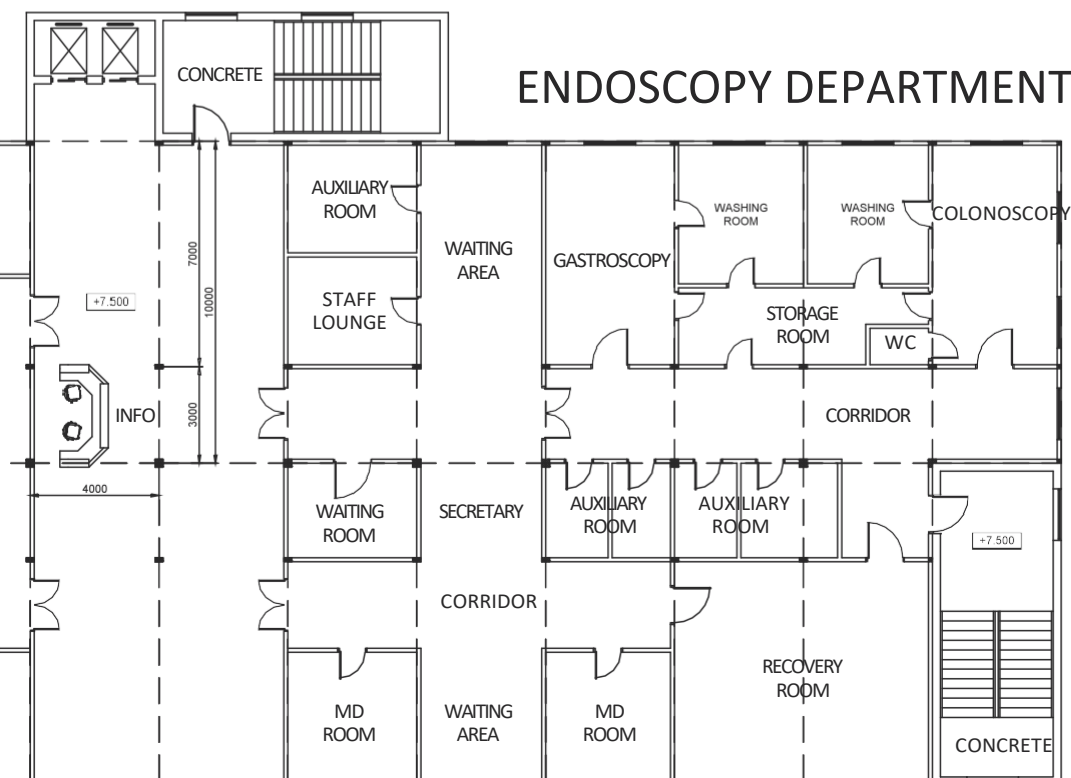




## THERAPY DEPARTMENT



## ENDOSCOPY DEPARTMENT



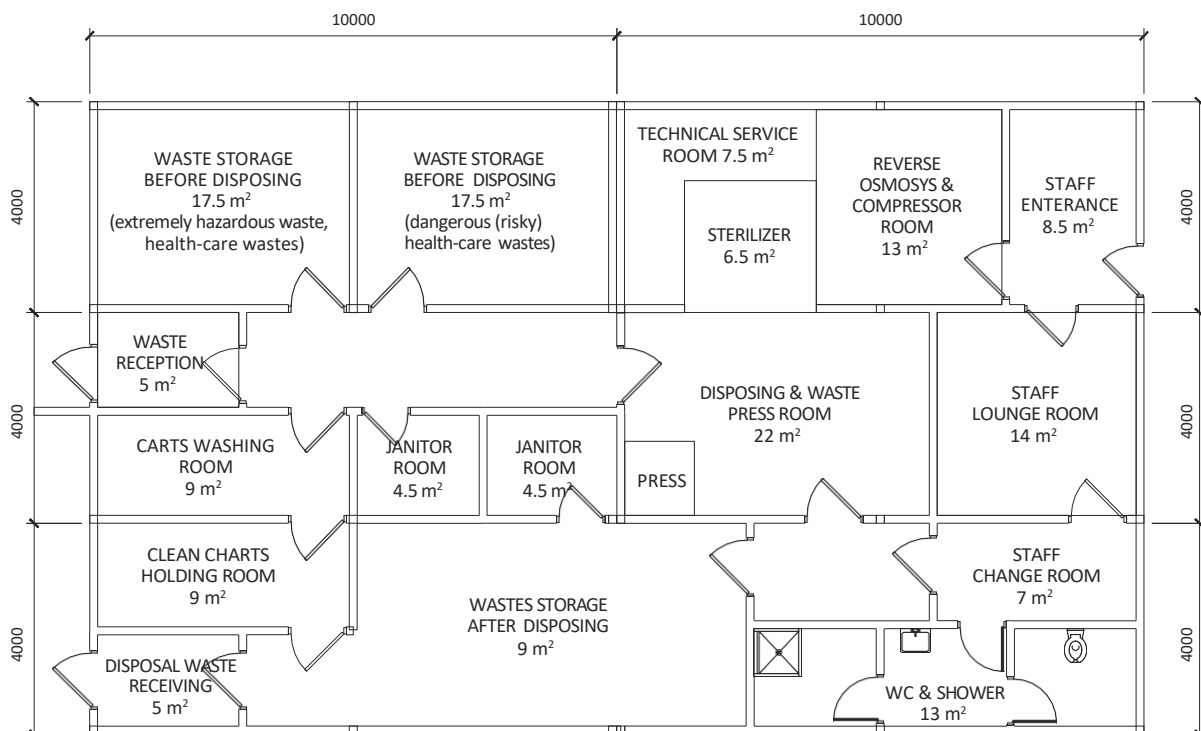
## Medical Waste Autoclave Modular Unit

A relocatable unit accommodating Medical Waste Autoclave (MWA), designed for small, medium and large scale hospitals.

This unit is a collaboration based product, together with “Tuttnauer” a worldwide leading manufacturer of sterilization and infection control machines, in order to allow any health care facility a comprehensive responsibility of the in house produced bio hazard (bio-medical) waste without dependency on outsourced services and with fulfillment of international codes.

- This solution is an easy on-site installation which removes the transportation of waste to an external treatment facility
- Chemical free process
- Clean and environmentally safe technology
- Sterilized medical waste can be transferred to the general municipal waste treatment area or can be buried as landfilled

These MWA Modular unit can be supplied in 10 variable models with different waste volume capacities (250 liter–1300 liter).



## MRI Units

Forta Pro offers Magnetic Resonance Centre for existing facilities expansion, as external “self- containing” unit, on top of existing buildings or any other kind or assembly option.

The use of modular constructions gives plenty of advantages, however, in hospital expansions or additions the most significant benefit is the uninterrupted operation of the medical institution. The hospital doesn't stop its routine operation due to construction works – it could even be expanded without the usual construction site, because the largest amount of work is done at the Forta Pro factory.

Modules with the complete interior furnishing and infrastructure are manufactured at the factory, so that there is minimal onsite work to be carried out, such as foundations, modular assembly and façade decoration.

The modular construction of MR units offers savings of financial resources and time. This flexible solution is environmentally friendly, as it considerably reduces the amount of construction waste.





## Other Modular Solutions

Strict quality control and inspection implemented in our modern factory and supported by Forta Pro multi-disciplinary professional team, provide a guaranteed comprehensive quality solution for:

- Residential houses
- Hotels
- Commercial buildings
- Public buildings
- Inbuilt WC rooms (PODs);

Forta Pro propose up to 20 floors buildings.

- Prefabricated fully equipped modules, with all furniture and equipment installed on factory
- “Turn Key” solutions







## Bathroom units / WC Pods

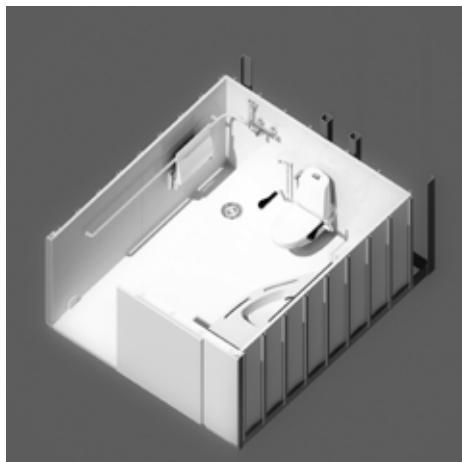
Forta Pro manufactures prefabricated bathroom units and WC Pods for the healthcare market. The Pods are designed, built under controlled and QA'd conditions and shipped as a complete assembled unit from our factory. The Pods structure is made from steel profiles, with high performance interior panels or any other finishes according to the customer request. The Pods provide excellent fire and acoustic rating possibilities, and are completed with all accessories as per client specification.

Forta Pro can also provide specific clinical finishes with level access floors and fully equipped with seats and handrails for disabled accessibility.

All Pods are built in accordance with the current regulations in the countries of destination to ensure that every detail is compliant, especially plumbing and electrical systems.

The key advantages of using Forta Pro Prefabricated Pods are:

1. **Faster-** Prefab bathroom pods accelerate the construction timeline with an efficient on-site installation and no punch list.
2. **Quality-** The factory production makes it possible to raise the level of quality and product reliability, thanks to continuous production control and robust final testing procedures.
3. **Simple-** The Bathroom Pods designed using 3D modeling for onsite compatibility, delivered, installed and connected to the building's mechanical systems.
4. **Safe-** Fewer employees at the work site can reduce incidents and potentially general liability insurance.





## Elderly People Home

Forta Pro offers unique know-how for elderly people home design and production. Our team of expert designers and engineers has accumulated long-term worldwide working experience.

Our modules are manufactured in a weather-controlled indoor environment. We place great attention to weather protection and insulation to create extremely energy-efficient product that is very economical to heat or cool. Interior flooring options include carpet, vinyl, wooden floors or any other choice to match customer's needs. Exterior facades and finishes are available to match your architectural desires.

The offered prefabricated modules offer a complete, turn-key solution with emphasis on elderly people needs, safety and well-being, including:

- Easy navigation created with physical challenges in mind
- Wheelchair access through all doorways
- Kitchen and bathroom adapted for wheelchair access
- Elevated toilets
- Reinforcing behind bathroom walls for optional handrails



# TECHNICAL DESCRIPTION

## The Structure

A computer designed steel structure planned to withstand the required “live loads”, Seismic and regional climatic loads (wind, snow, temp’) and fire rated protection cover, all are aimed to meet the international standards.

Our structure is planned to offer:

- Maximum corrosion resistance
- Maximum mechanical endurance
- Maximum recycled material use
- Minimal self weight
- Each module is independently structured to withstand full set of external loads, thus, by installing the modules into one combined structure, the overall structure endurance is increased
- Fire resistance

## Flooring Systems

- We can offer flooring system made of:
- PVC\linoleum
- Wood\parquet
- Ceramic tiles
- Granite porcelain
- Terrazzo tiles
- Epoxy resin floors

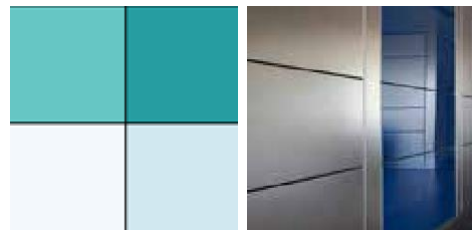


## Wall Systems

The walls are built by multi-layer cement and gypsum boards system which supplies the required partition, acoustics, fire protection standards.

As a finishing covering layer, we can offer one of the following options:

- Stainless steel panels
- Galvanized steel panels HPL PVC
- Anti-bacterial paint system, decorative paint system
- Cement board decorative



## Ceiling Systems

We can fit each room requirements by offering an architectural ceiling solution which address the technical needs.

- Gypsum board
- Acoustic panels: different perforation levels
- Wood panels
- Metal panels
- Clean ceiling panels
- All option with removable segments to allow accessibility to technical system above



## Doors & Windows

- Hinged doors
- Sliding doors
- Hermetic doors
- Fire rated doors
- X-Ray shielded door
- Aluminum double glazing with inserted venetian blinds
- Aluminum with thermal glazing



## Exterior Cladding

- Cement (with/without color pigment) panels
- Natural stone
- Aluminum-glass panels
- Plaster
- Wood panels



## In Door Installed Fixtures

- Inpatient/ICU/Staff sinks
- OR's staff scrubbing sinks
- Nurse computer station
- OR clock
- Nurse call systems
- Handrail assistance systems
- Flush wall installed cabins
- Pass through cabins
- Control panels



- Clean area illumination fixtures
- General and special areas illumination
- Mirrors
- Soap/gloves/paper dispenser
- Clean area illumination fixtures
- General and special areas illumination
- Mirrors
- Soap/gloves/paper dispenser

## Electromechanical Systems

- H.E.P.A and H.V.A.C
- Laminar flows system
- F.C.U (2PU/4PU)
- AHW
- Chillers/Air/ Water cooling system
- Heating system (Electrical/Gas)
- Exhaust air units

## Medical Gas System

- O2, VAC, N2O, CAir, MedAir, CO2, N2, SCV
- Head wall (I.P) Pendants (ICU, OR)

## High Voltage/Low/I.T. System

- Grounding systems
- Transformers
- Diesel/Gas generators
- U.P.S
- Switchboards
- Cables system
- Life supporting areassystems
- C.C.T.V

## General Systems

- Elevators (Service, Clean/Soiled, Public, Staff )
- Pneumatic tube system(P.T.S)
- Furniture (Stainless steel, wood, HPL, MDF, etc.)

# FORTA PRO

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