

TECHNICAL HIGHLIGHTS

1. 100% stainless steel structure, free of hidden dirt, extremely durable
2. 100% factory pre-fabricated, reliable quality
3. On-site installation and commissioning speed: 1 floor/day
4. Low cost containerized transportation. Room width 4.5m after installation
5. 100% fresh air eliminates cross infection
6. Ozone disinfection with accurately controlled concentrations in different areas



FUNCTIONS

- Treating patients with serious infectious diseases
- Protecting medical staff from infections
- Protecting communities from contamination
- Can be used as regular wards in normal times

APPLICABLE PLACES

- Urban or rural areas, better to be established in existing hospitals
- On cruise ships or barges
- Can be used as temporary building or permanent building
- Can be dismantled, relocated and reinstalled at a low cost

BUILDING SCALE

- 192~800 beds
- Land occupation around 1,200~2,000 m²
- 8~20 floors, floor height 3 m

LEAD TIME

30~100 days (includes shipping)

PRICE

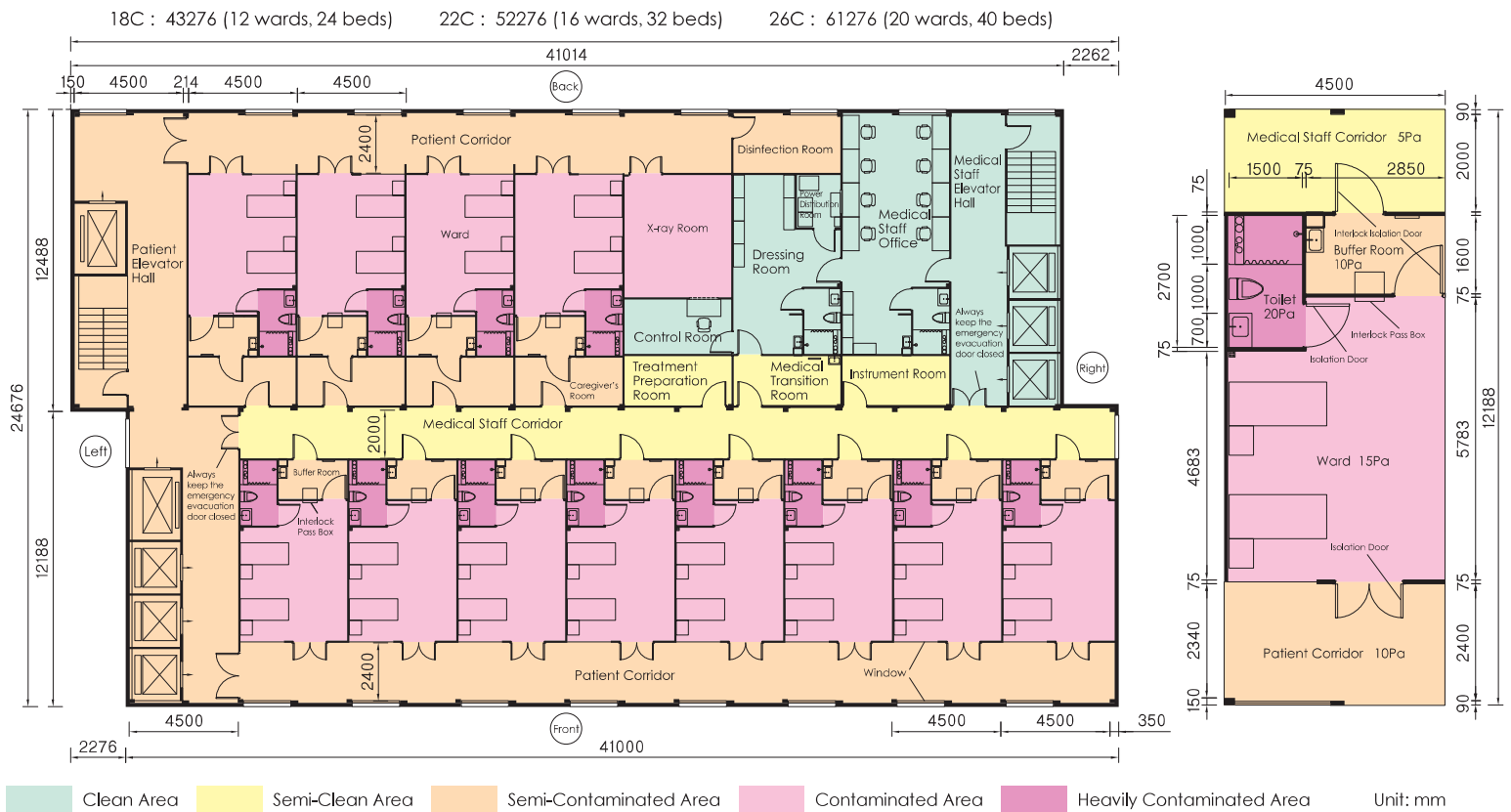
\$113,000~142,000/bed

ARCHITECTURAL APPEARANCE

BROAD **b** **NPI ROOM**
Negative Pressure Isolation



FLOOR PLAN



CONFIGURATION AND PRICING



No.	Building Type	Beds	Elevators	Floors	Building Area/Floor (m ²)	Total Building Area (m ²)	Building LxWxH (m)	Transport Units	Approx. Time (days)		Price/Building (Currency: USD1,000)	Price/Bed (Currency: USD1,000)
									Prefabrication	Installation		
1	18C8	192	3	8F	1013	8,104	43.3×24.7×24	150	12	10	27,312	142
2	18C12	288	4	12F	1013	12,156	43.3×24.7×36	222	14	12	39,468	137
3	18C16	384	5	16F	1013	16,208	43.3×24.7×48	294	16	14	51,624	134
4	18C20	480	6	20F	1013	20,260	43.3×24.7×60	366	18	16	63,780	133
5	22C8	256	4	8F	1235	9,880	52.3×24.7×24	182	14	10	32,640	128
6	22C12	384	5	12F	1235	14,820	52.3×24.7×36	270	16	12	47,460	124
7	22C16	512	6	16F	1235	19,760	52.3×24.7×48	358	18	14	62,280	122
8	22C20	640	7	20F	1235	24,700	52.3×24.7×60	446	20	16	77,100	120
9	26C8	320	5	8F	1457	11,656	61.3×24.7×24	214	16	10	37,968	119
10	26C12	480	6	12F	1457	17,484	61.3×24.7×36	318	20	12	55,452	116
11	26C16	640	7	16F	1457	23,312	61.3×24.7×48	422	24	14	72,936	114
12	26C20	800	8	20F	1457	29,140	61.3×24.7×60	526	28	16	90,420	113

NOTES:

- BROAD is responsible for construction, mechanical, and electrical work. Customers are responsible for foundation and outdoor engineering work
- Transportation within China: 4~6 days. International transportation: 5~45 days (depending on the distance)
- The price includes on-site installation but not transportation. NPI Room will be packed and transported according to the size of a standard (heightened) 40 feet container
- Pricing valid until December 31, 2020
- As indicated by 7 Keys to 'Highest Value, Lowest Cost' for Healthcare Construction in www.bdcnetwork.com, and How Much Does It Cost to Build A Hospital in www.cost-finder.com, the cost for traditional hospital is \$ 850,000~1,500,000/bed

TECHNICAL STANDARDS



BUILDING PARAMETERS

No.	Item	Parameters	Note
1	Module transportation dimension	12192×2438×3000 mm	Per container shipment requirements
2	Module installation dimension	12492×4500×3000 mm	Including 150 mm insulation
3	Indoor clear height	2825 mm	Top floor 2675 mm
4	Building live load	200 kg/m ²	Building dead load 150 kg/m ²
5	Roof load	300 kg/m ²	Snow load included
6	Structural material	Stainless Steel	50 times more resistant to corrosion than carbon steel
7	Exterior wall insulation K value	0.4 W/m ² ·℃	Equivalent to 3m thick concrete
8	Window K value	1.6 W/m ² ·℃	Triple-paned glass window
9	Indoor temp.	23±1℃	BROAD non-electric air conditioning
10	Fresh air volume	≥40 m ³ /person·h	BROAD clean fresh air machine
11	Air freshness	100 % fresh air	With no return air
12	Fresh air filtration efficiency rate	99.9 %	Filter PM 0.3~2.5
13	Ward ozone concentration	Rated 0.3 ppm	Adjustable range: 0.1~1.5 ppm
14	Exhaust air disinfection	Ozone disinfection, 5 ppm	Ventilated to the atmosphere after disinfection

NEGATIVE PRESSURE ISOLATION ROOM PARAMETERS

No.	Room Name	Room Static Pressure	Ventilation Frequency	Area
1	Ward Toilet	-20 Pa	12 times/h	Heavily Contaminated Area
2	Ward	-15 Pa	12 times/h	Contaminated Area
3	Patient Corridor	-10 Pa	6 times/h	Semi-Contaminated Area
4	Buffer Room	-10 Pa	6 times/h	
5	Treatment Room	-10 Pa	6 times/h	Semi-Clean Area
6	Medical Staff Corridor	-5 Pa	6 times/h	
7	Medical Staff Office, Dressing Room	-5 Pa	6 times/h	Clean Area

UNIQUE "ASEPTIC" SOLUTIONS OF THIS BUILDING

1. The building structural parts and envelop enclosure are made of stainless steel free of hidden dirt
2. The whole building has no suspension ceilings, no mezzanines and no sanitary dead corners
3. 15 cm rock wool insulation and triple-paned glass windows are used for exterior walls and the roof to ensure non-condensation and super energy efficiency
4. The interior surface layer is made of non-absorbent, scrub-resistant, leak-proof decorative materials, which do not breed bacteria
5. The fresh air PM0.3~2.5 filtration rate is up to 99.9%, completely eradicates dust and bacteria in the air ducts and air conditioning radiator
6. Accurate use of ozone for safe and effective disinfection and sterilization of ward air, medical wastes and building exhaust air

KEY "NEGATIVE PRESSURE ISOLATION" SOLUTIONS OF THIS BUILDING

1. The building is laid out according to the medical process of infectious diseases. According to the diagnosis and treatment process of the COVID-19, the building is divided into clean area, restricted area (semi-clean area), and isolation areas (semi-contaminated area and contaminated area). Buffer rooms will be set up between adjacent areas.
2. The building facilities and components are effectively integrated with the management of air flow, so that the unidirectional flow of air from the restricted area and isolation area to the semi-contaminated area and contaminated area can be realized under the prescribed pressure gradient
3. The corridors for medical staff and patients are strictly regulated to prevent cross infection
4. Double-door interlock pass box is used for deliveries between medical staff corridor and ward
5. The design of mechanical and electrical facilities as well as sensor placement will match the functions of negative pressure isolation rooms
6. Sealing treatment will be applied for mechanical and electrical pipes and wires passing through floors and partition walls

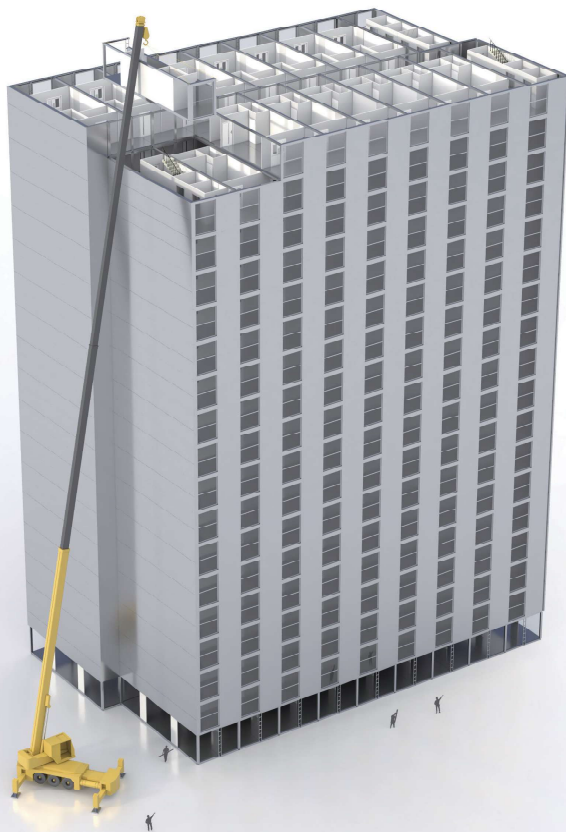
APPLIED STANDARDS

Chinese national standard: Requirements of Environmental Control for Hospital Negative Pressure Isolation Ward GB/T 35428-2017

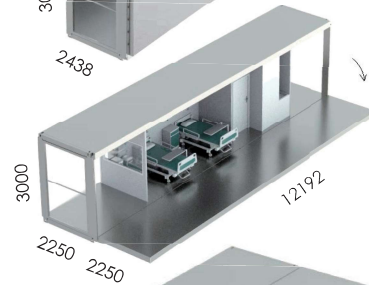
CECS standard: The Design Standard of Infectious Disease Emergency Medical Facilities for Novel Coronavirus (2019-nCoV) Infected Pneumonia 1/CECS 661-2020

Most of the Chinese standards were used to learn from European and American standards. Due to the experience and lessons drawn from SARS and the COVID-19, Chinese standards are stricter than European and American standards in many aspects

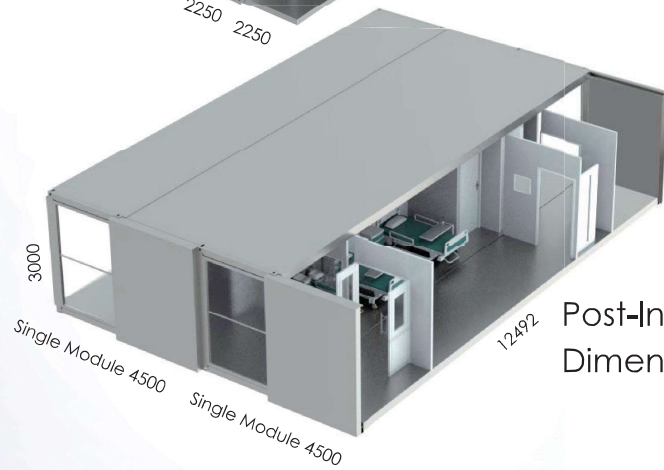
BUILDING MODULE DIMENSIONS



Transportation Dimensions



Pre-Installation Dimensions



Post-Installation Dimensions

Unit: mm

DELIVERY SCOPE



BUILDING CONSTRUCTION AND DELIVERY SCOPE

No.	Item	Customer's Duty	BROAD's Duty	Lead Time	Note
1	Project site information	√			Detailed information such as the site plan, planning map and surrounding photos, etc.
2	Functional diagrams, floor plans and elevations		√		Per customer's confirmation
3	Building foundation size and load diagram		√		For customers to hire local engineers for foundation workshop drawings
4	Module pre-fabrication		√		Including all building structural parts, mechanical and electrical parts, and interior decoration
5	Construction of the building foundation and surrounding infrastructure	√			Building foundation, outdoor stairs and ramp construction
6	Design and construction of the sewage system	√			See BROAD's drawings for sewage pipe diameter, location and quantity
7	Water and power supply for the construction site	√			As per BROAD's drawing
8	Fire protection design and construction for building surroundings	√			As per local codes
9	Vacant areas for temporary storage	√			Adequate space for prefabricated parts near the construction site
10	Installation and lifting equipment in place	√			Truck crane, as per the demand of building floors
11	Module transportation (factory- customer)	√			BROAD can help the shipment for customers
12	Building Installation and commissioning		√		Customer should obtain a construction permit in advance, and provide accommodation for construction workers
13	As-built drawings and manuals		√		Meeting the needs of building operation and maintenance
14	Completion Acceptance	√			Invite local authorities and medical department for project acceptance
15	Customer training		√		Training of customer's operation and management personnel

MEDICAL ENGINEERING CONSTRUCTION AND DELIVERY

No.	Item	Customer's Duty	BROAD's Duty	Lead Time
1	Radiation-proof walls, floor and roof of the X-ray room		√	
2	Medical gas supply system	√		
3	Medical communication cables	√		
4	Ward CCTV and visiting system	√		
5	Medical intercom system		√	
6	WLAN		√	

TIPS ON HOSPITAL SITE SELECTION

Open spaces or adjacent lots with existing medical facilities should be considered to meet the following conditions:

1. Good geological conditions
2. Well-equipped municipal supporting facilities
3. Convenient transportation
4. An environmentally friendly isolation zone within a 20 m radius
5. Locate as far as possible from densely populated places and environmentally sensitive areas
6. Mobile hospitals can also be installed on cruise ships

BROAD'S EXPERTISE ON NEGATIVE PRESSURE ISOLATION ROOM



1. 11 years of experience in prefabricated buildings. BROAD has built more than 60 steel structure buildings and stainless steel buildings
2. Extremely high prefabrication rate: Onsite installation 3 floors/day. Online videos of previous construction projects, such as building a 57-storey building in 19 days, have amazed the world
3. In 2016, BROAD invented stainless steel B-CORE building, which can resist up to a magnitude 9 earthquake and is extremely durable
4. BROAD uses 15 cm rock wool insulation for exterior wall, triple-paned glass window, external solar shading and fresh air heat recovery system to realize super energy efficiency
5. 15 years of experience in air quality management: BROAD invented a fresh air machine which provides 100% fresh air with no return air, and a PM2.5 filtration rate of 99.9%. The system also showcases a good command of air flow control technology for negative pressure isolation room
6. BROAD has a deep expertise in ozone disinfection technology for patient wards, which reduces cross-infection and protects medical staff
7. BROAD invented ozone disinfection technology for hospital wards with a special exhaust system which reduces the risk of hospital neighborhood contamination
8. BROAD invented an Ozone Disinfection Cabin which disinfects personnel, equipment and medical waste in and out of hospitals, reducing the risk of cross-infection between the hospital and the community
9. BROAD invented a modular containerized transportation system (the building itself meets requirements of a container in regards of size and hoisting points). The width of the transported module will be doubled when it is ready for an on-site installation. This unique system cuts the freight by half, and shortens the construction duration by 10 times



BSB Factory in Xiangyin

ABOUT US

- BROAD Sustainable Building Co., Ltd is a wholly owned subsidiary of the BROAD Group, with invested capital of approximately RMB 7 billion
- Established in 2009, factory is located in Xiangyin, Hunan
- Occupies an area of 1.3 km², workshop areas 230,000 m², employees 1000



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