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PT Breesen Technology Indonesia
Authorized dealer of
Broadwell Air Domes in Indonesia

Leading development of Air Domes in Indonesia

BROADWELL Global Leader in Air Domes since 2003

About Broadwell Air Domes

Broadwell Air Domes

Broadwell Air Dome is an air-supported sturdy structure which offers several unique advantages as compared to traditional concrete and steel structure, viz., lower cost of construction, fast implementation, low operation cost, greater space utilization, etc. The membrane of Air Dome is PVC with PVDF coating, which is highly durable and of high strength. **Broadwell** is pioneer and global leader in air dome industry with more than two decades of experience and already implemented several hundreds of Air Dome across global for various applications. Broadwell has developed unique design features and owns several design patents.

Breesen is exclusive partner of **Broadwell** for sales, promotion and implementation of **Broadwell Air Domes** in Indonesia.

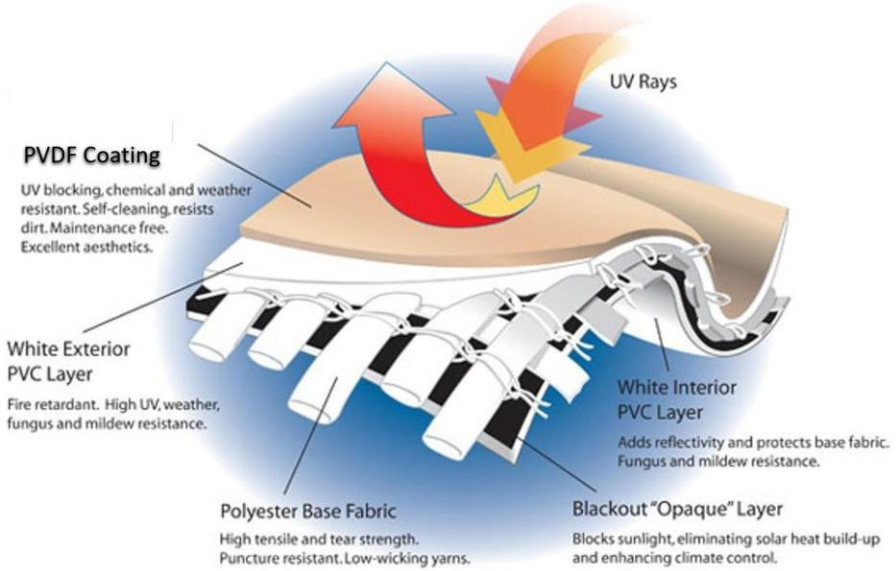
Global presence of Broadwell Air Domes

UNIQUE ADVANTAGES OF BROADWELL AIR DOMES

- Lower cost of construction
- Fast implementation
- Energy saving
- Low operation cost
- Higher space utilization
- Sturdy permanent structure with higher safety
- Almost no construction waste

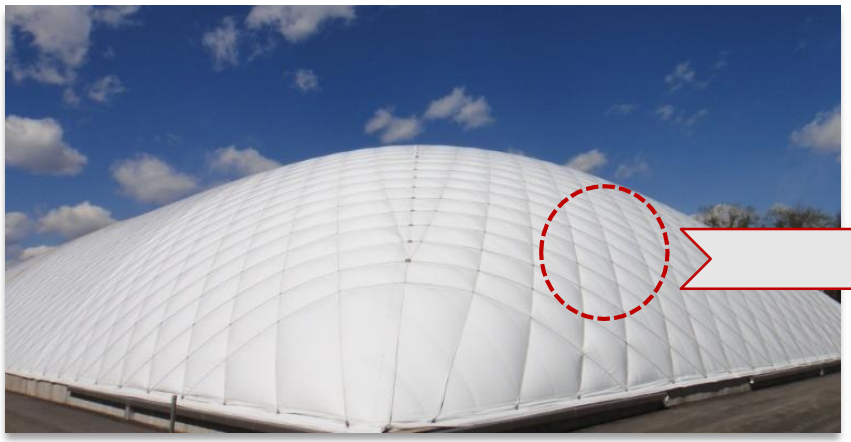
The membrane used in Air Dome, which constitutes major part of Air Dome, is a highly durable material, which comes with **Warranty of 15 years.**

Membrane & bias-harness cable design



Air Dome uses specially designed petroleum by-product PVC membrane with PVDF coating, which is made in several layers, with specific properties, like:

- **It reflects up 90% sunrays**, providing insulation properties against sun heat. Therefore, requires less power consumption for air conditioning inside.
- **Fire retardant properties.** Membrane meets US Fire Code NFPA-701 and Chinese standards B1. Without flame, it doesn't burn itself and fire does not propagate easily.
- Designed with low-wicking yarns, for **high tensile and tear strength, and puncture resistance**
- Originally comes in white color. However, several **different color choices** may be made.



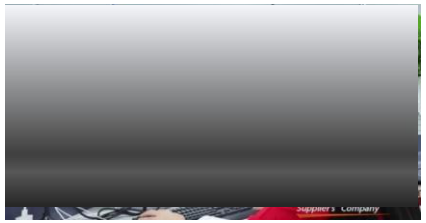
Unique **patented bias-harness cable design** covers completely outer membrane with designed wind load up to 67 m/s (level 16 typhoon) and with load taking capacity 250 kg/m^2 .

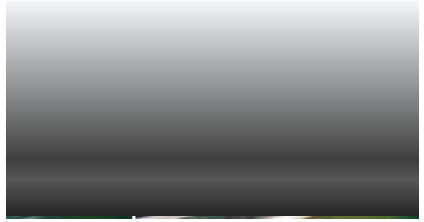
Bias-harness cable system is key which provides strength and safety to Air Dome.

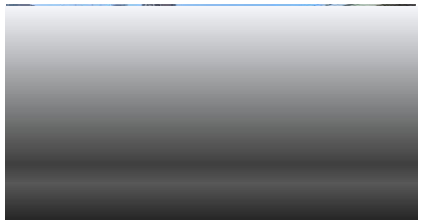
Fast Implementation

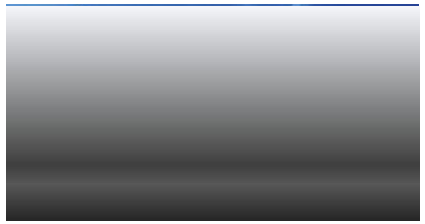
A typical Air Dome of size 10,000 m^2 or less can be completed within 13 - 15 weeks starting from design & engineering until commissioning.

Majority of manufacturing works done at factory, and the whole system can be assembled in the site very quickly, and nearly no construction waste.









Design works — 2-3 weeks

Manufacturing — 5 weeks

Civil Works — 8 weeks

Shipment — 3 weeks

Installation — 3 - 4 weeks

0 1 2 3 4 5 6 7 8 9 10 11 12

WEEKS

Lower cost of construction

- **Very less civil construction works**. Air Dome requires very simple and light foundations and in most of the cases, no piling is required. Overall consumes very less steel and cement which makes the Air Dome substantially cost effective as compared to normal building structure.

- **Very short time site-works**. The installation and commissioning of Air Dome at site takes 3 to 4 weeks and requires very less manpower. Hence, practically no site establishment cost as compared to normal building construction works. For example, an Air Dome of 10,000 m^2 floor area will require 3-4 weeks for installation and commissioning after receiving the material at site and will require about 20-25 manpower. Whereas a normal building of same size will require 12-14 months, with hundreds of workers and several construction equipment which requires full site establishment.

- **Large span without columns and beams**. The Air Dome proves extra-ordinarily cost effective for applications which requires large span construction without column supports, mainly for bulk material storage where columns supports can not be made due to equipment movement. Air Dome may be built with span up to 200 mtr. Due to no columns and beams, Air Dome provides greater space utilization.

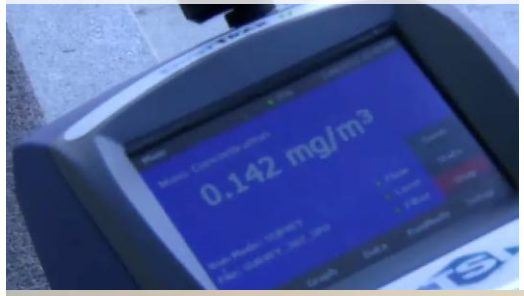
- **Simple equipments; low operation cost**. Air Dome uses simple equipments, like Blowers, Gensets, Filters, etc. which are easy to maintain and with less operation cost.

Clean Air/ Better Emergency Response

CLEAN AIR

Air dome is a positive pressure structure, generally with interior air pressure 300-350pa higher than outside, and the air only go into the Air Dome with inflation system through filtration, which makes the dirty air outside of Dome, maintaining clean air inside. **Actual readings of air pollution in a sports Air Dome is shown below**

Just outside Air Dome



Inside Air Dome

ISB International School, Beijing Sports Air Dome

BETTER EMERGENCY RESPONSE

- The membrane is flame retardant materials without the flame, it doesn't burn itself. Also, fire does not propagate easily.
- In the fire situation, generally people gets hurt by smoke instead of fire. In Air Dome, the height is generally high which makes the smoke to be accumulated in the top area, which give more time for people to escape. Secondly, due to positive pressure inside the air dome, smoke will escape fast from the Air Dome in case of fire which has created a hole/space.
- Air dome is constructed without columns and beams, so in the emergency case, people can easily find the emergency exit. All Air Domes are provided with sufficient emergency exits.
- Due to light weight structure, it is unlikely to create any damage incase of earthquake or collapsing of structure due to any extreme calamities. (Earthquake proof)

Energy conservation

Air Dome provides substantial energy conservation, mainly for lighting and cooling of building. Air Domes generally provided with some strips of translucent membranes which saves lighting power during daytime, and high insulation property of membrane, results in low energy consumption for cooling s heating.

A typical case study of a Sports Air Dome of area 3,000 sq.m. shows saving of about US$ 35,000 – 40,000 per year.

CASE STUDY
Air Dome v/s Traditional Bldg.
Sports Complex – Area 3,000 m^2

	Air Dome (kwh annually)	Traditional Bldg. (kwh annually)
Mechanical System	15,768	7,300
Lighting System	63,875	122,640
Cooling System	57,057	361,358
Total	**136,700**	**491,298**

Annual Savings : 354,568 kwh
: ~ US$ 35,000 - US$ 40,000

In any building, air conditioning operation cost constitutes majority of operation cost. Air Dome reduces the air conditioning operation cost substantially due to higher insulation property of membrane, making overall operation cost low.

Remote monitoring interface on Mobile App.

Broadwell Air dome building uses PLC intelligent control system for monitoring and controlling various parameters, such as, air pressure, temperature, humidity, wind speed, snow pressure, air quality etc. The control system may be connected to PC or to cell phone through application designed by Boradwell. The control system with alarm system can remotely deal with sudden weather and unexpected events.

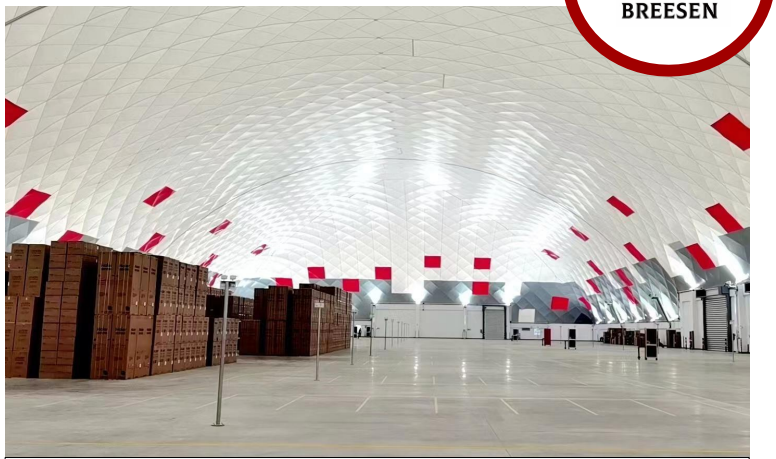
Depending upon the application of Air Dome, i.e., whether it is built for Exhibition Hall, Sports Complex, Bulk Material storage, etc., and depending upon location, the control system shall be tailor made to suit specific application.

Control system will greatly help in monitoring and controlling power consumption and therefore results in energy saving.

Air Dome applications

Bulk Material Storage

Factories/ Workshops



Warehouses

Sports Complex

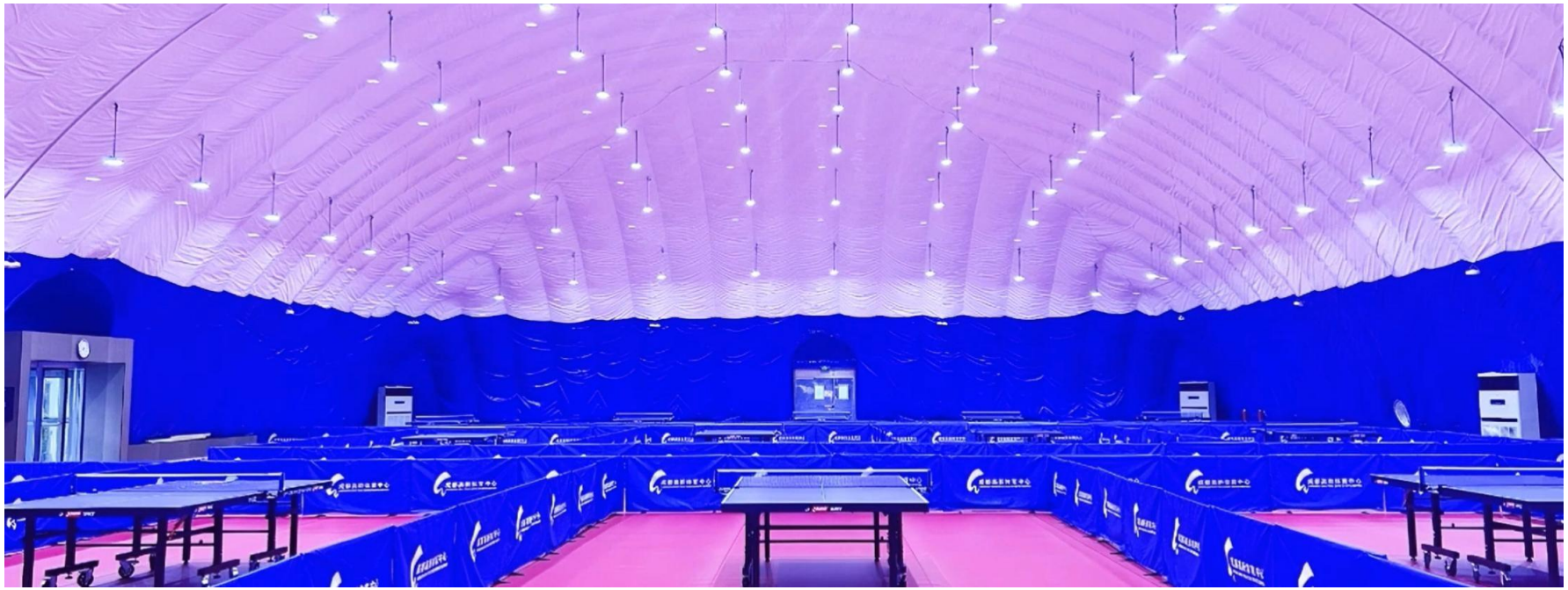
Exhibition/ Event Halls

Concert Halls

Sports and Children Park Air Domes

Sports Air Domes are one of the most commonly used application for Air Domes. Sports Air Domes are generally made up of two layer membranes with insulation material in between.

Broadwell Sports Air Dome



Normally, the sports centers available in Indonesia are having steel sheds/walls without air conditioning system, which makes the sports centers usable for limited hours. Many sports centers are semi-indoor type.

Air Dome provides premium quality sports center at very reasonable cost, fully air conditioned, fully pollution free air inside, which increases commercial value of sports center. Air Dome Sports Centers may be used during any time and in any weather.

Broadwell Airwell Airfit Design

Broadwell Airwell Airfit Design is an innovative design which is specially made for Sports Air Dome, to provide enhanced healthy environment to improve the health of people by several ways.

Airwell Airfit is a technology which is integration of kinematics science and AI science, which is aimed to improve body performance. In this technology, the Air Pressure and Oxygen level can be adjusted through smart system which creates an environment in which sports is played, it improves oxygen level in blood.

Sports for Health

- Improves the effect on muscles and endurance during training
- Enhance cardiopulmonary function, improves body performance and relieve fatigue during exercise
- Efficient fat burning process
- Enhance brain concentration level
- Reduces chances of injury during sport

Main advantages of Broadwell Sports Air Dome

PREMIUM QUALITY SPORTS CENTER AT LOWER COST

Broadwell Sports Air Dome provides a premium quality Sports Center with higher commercial value at much lesser cost because of its elegant appearance, fully air conditioned, and usable any time in a day.

HEALTHY AIR

Air Dome is an air-tight structure in which air enters through filter which provides a clean and pollution free air, which is an important aspect for Sports Centers.

LOW OPERATION COST

Sports Air Domes are made up of two layer membranes with insulation material in between. First of all membrane itself is having sun rays repellant properties and providing two layer membrane with additional insulation material in between, creates higher insulation effect and therefore, air conditioning operation cost is substantially low. In any building/ closed structure, air-conditioning operation cost constitutes major part of operation cost, and reduction in air-conditioning operation cost substantially, offers lower operating cost for Sports Air Domes.

1. Zhengdong Dragon Lake
2018 National Sports Center

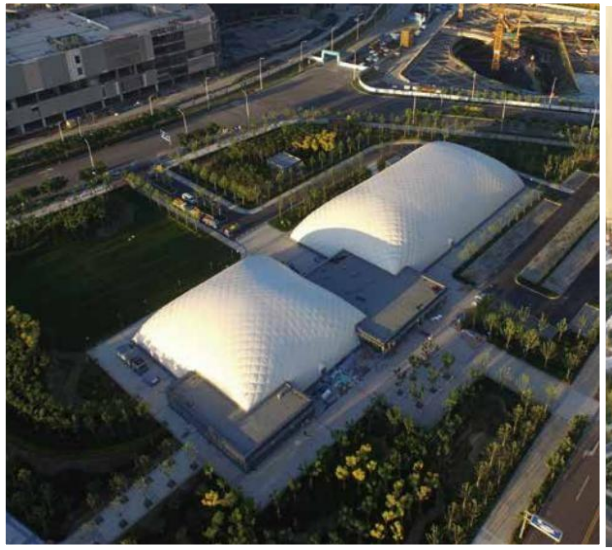
L 100 m x W 40 m x H 13 m, 3 air domes Total 12000 m²

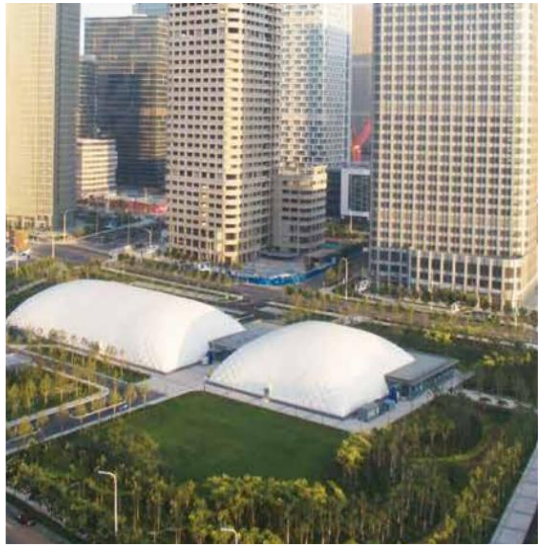
The whole center consists of three air domes, one swimming pool, one basketball and one trampoline. Each one is 4,000 sqm. It is located in the high tech park of Zhengzhou, the center of China. It is a mutual function sports park and allow thousands of people to have sports in the same time.

2. Tianjin Xiangluowan Sports Center
2015 Badninton G Tennis Center

L 70 n x W 37.5 n x H 14.1 n	2,625 n²
L 40 n x W 40 n x H 14.1 n	1,600 n²

Tianjin Xiangluowan Sports Center is consisted of two Air Domes, both as fully closed indoor sports hall, and equipped with Broadwell patent "Blue Sky" air purification system. Total 16 badminton and 2 tennis courts were built inside the Air Domes, where about 100 players can play simultaneously. The air dome is having controlled temperature and humidity, and it is unmatched comfortable and clean. By providing transparent membrane at top, the energy consumption is extremely low, which consumes only 1/6 of energy consumption of traditional indoor venues. It particularly provided an ideal place for sports even in the haze and chilling winter seasons.

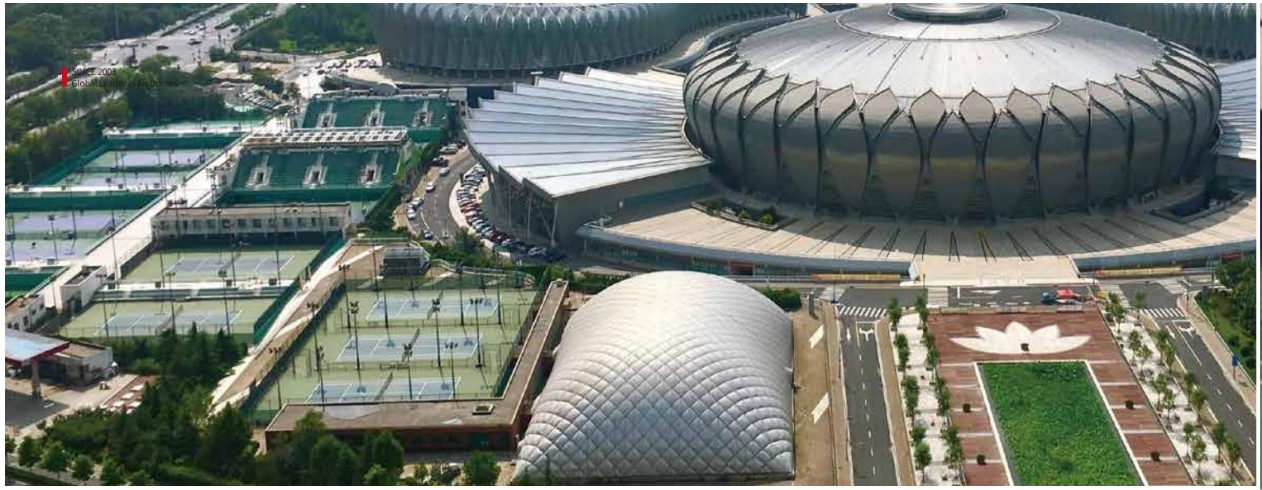




3. Jinan Olympic Sports Center
2011 Badninton G Swinning Center

L 62.1 n x W 41.5 n x H 16 n	2,577.15 n²
L 54.6 n x W 23.4 n x H 11 n	1,277.64 n²

The Jinan Olympic Sports Center, where The 11th National Games in 2006, and the 2012 London Olympics Asian qualification games were held, owns reputation of "one of the most beautiful sports stadiums in the World". Badminton and the swimming pool facilities are made inside Air Dome building equipped with Broadwell's unique active fresh air circulation system to provide comfortable sports environment for athletes and spectators. Compared with traditional buildings, the maintenance cost and operating cost of the air dome structure are very low due to its unique design and system by Broadwell.



4. Beijing Shunyi International School

2012 Air Done with high anbient air quality

L 75.6 n x W 56.5 n x H 18.8 n	4,271.40 n²
L 75.6 n x W 56.5 n x H 18.8 n	4,271.40 n²

Beijing Shunyi International School (ISB) is an international school established in the 1670s. It is a wholly foreign-owned institution that provides education for the children of foreigners working and living in Beijing. Equipped with Broadwell‘s patented "Blue Sky" purification system, the ISB Air Dome Sport Stadium can filter pm2.5 and meet the healthy indoor environment of AQI (the highest standard of Ambient Air Quality Index), and provide an absolutely clean and healthy environment

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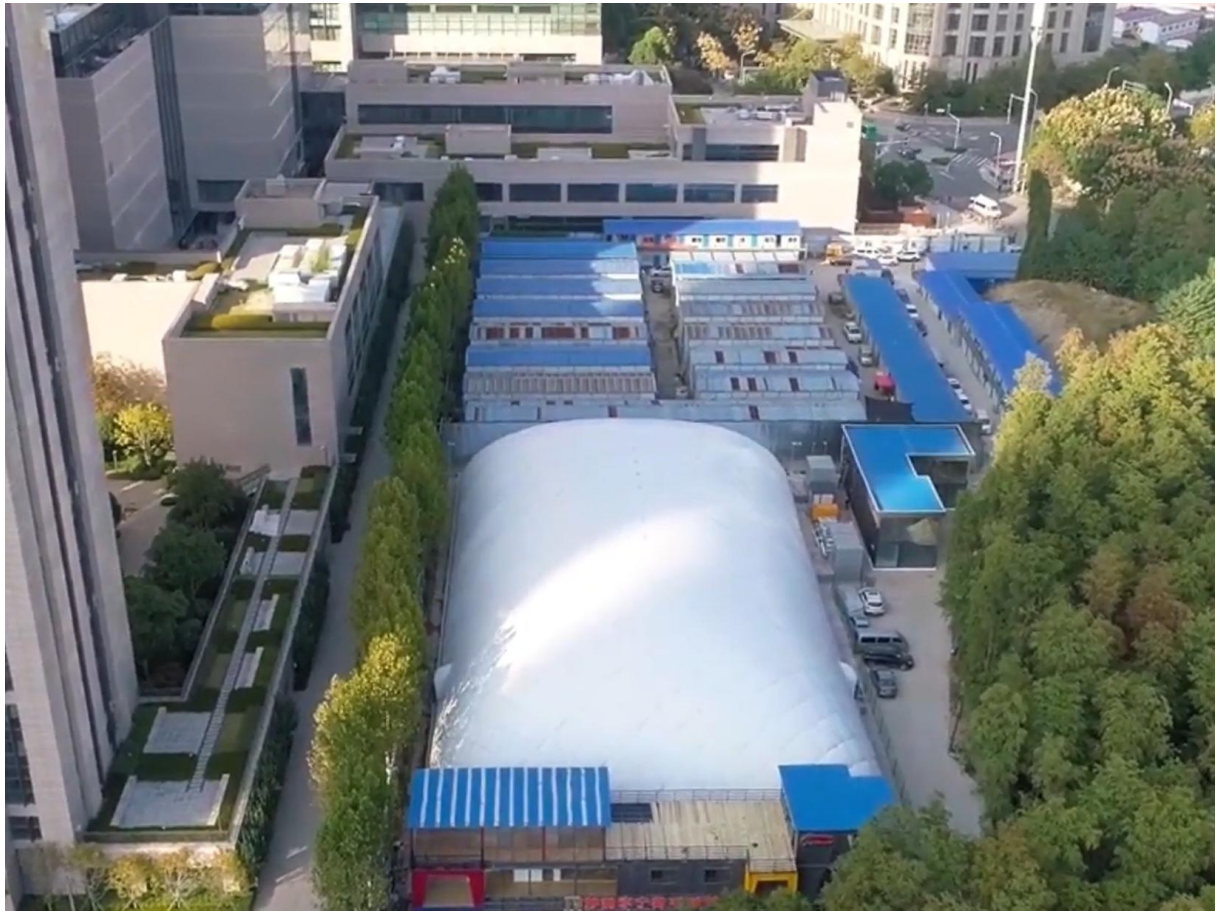
5. Wuhan Oceanwide CBD Sports Center

2013, Badninton Sports Center

2,275 n²



6. Swiming Center, Zhaoqing, Guagdong

201C PaoPao Sport Center

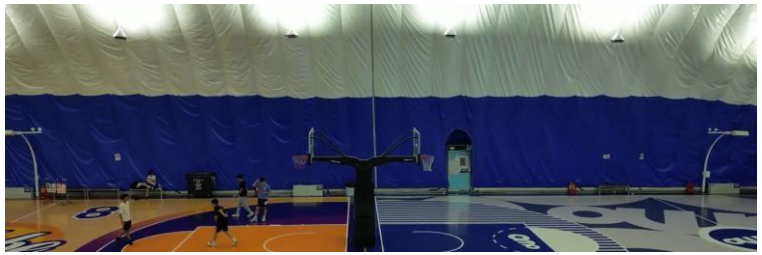
L52×W21n×HGn, 10G2㎡, L75n×W21n×HGn, 1575㎡, 2 Air Donez

This project consists two air domes, one for Tennis and other for swimming pool. This project is in a very famous tourist area, so it was designed with green color, to match with the environment around and to provide special aesthetic appearance.

7. PW Basketball s Badminton Park

2021, Shenzhen

4,640 ㎡



8. Gustavus Adolphus Swanson Tennis Center, Minnesota, USA 201G

L55 n x W85 n x H18 n - 4,675 n²

This Air Dome for Tennis is located in Gustavus Adolphus College, St. Peter, Minnesota, which is a very heavy snow area in USA. Complete Air Dome was built in 40 days, including design, manufacturing and installation.

9. NCWC Tennis Center Dome, North Carolina

L43.28n x W104.24n x H15.8n = 4,511㎡

The tennis center of Wesleyan College in North Carolina, US is the best indoor sports facility for the students.

10. Pohang City Disaster Evacuation Center, S. Korea

201G

L50n×W30n×H12 n, 1500 ㎡

This is a government evacuation center in Pohang, Korea. Comparing with many other structures, Pohang government choose Broadwell Air Dome as the solution after the earthquake in 2017. This whole facility is powered entirely by solar energy. And in the normal days, it is used as sports center for the citizens nearby.

11. Sanya Qidi Ice s Snow Sports Center

2017 Ice/Snow Stadiun at Hainian

L 70 n x W 45 n x H 16 n	3,07G.50 n²
L 60 n x W 45 n x H 16 n	2,5G8.30 n²
L 54 n x W 27 n x H Gn	1,366.50 n²

Sanya Qidi Ice and Snow Sports Center consists of three air domes of unique design with curved shape. It is China's first indoor snow dome, which was built in Sanya, Hainan Province, the southernmost city of China. The air domes can withstand the attack of extremely strong typhoon. Under the annual average outdoor temperature of 25.7 °C, the Air Domes can maintain low temperate for ice rink and the snow hall, create a perfect indoor snow environment, with minimum energy consumption. As per the record, the annual power consumption for the total 3 Air Domes is 1.5 million kWh, which is very economical compared with any other structure.

12. Children's Park of Balikesir
2015 Turkey

L 87 n x W 52 n x H 17 n	4,524 n²

Turkey's Balikesir is a province in the west of Turkey, located near Marmara Sea and the Aegean coast. Balikesir is famous tourist destination. The Children's Park Dome Project built by Broadwell was invested by the local government to support tourism in the region. It provides a full range of facilities for children and adolescents. This Children Part in Air Dome becomes a great attraction in that region and the public's response has been unprecedentedly enthusiastic.

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13. Air Dome Water Park
201C Xinjiang Shennu

Dianeter 110 n x H 14 n G,500 n²

The Xinjiang Shenmu Water Park is the largest indoor water park dome in the world. It is located in Urumqi, where the seasonal temperature difference can reach nearly 50℃ (-18℃ to 30℃), and the regional yearly average wind speed can reach by 6.2m/s. There are about 50 snowy days in a year, and snow thickness can be as much as 40 cm during winter. By using Broadwell Air Dome technology, the safety of air dome is guaranteed.

Events Air Domes

Event Air Dome *means Air Domes for Exhibition Hall, Concert Halls, Conference/ Seminar Halls, etc. Air Dome is a perfect solution for making elegant Event/ Exhibition/ Music Concert/ Seminar halls at less cost with effective visual appearances. These Air Domes are also made with higher insulation property which helps in reduction of operation cost of air-conditioning system.*

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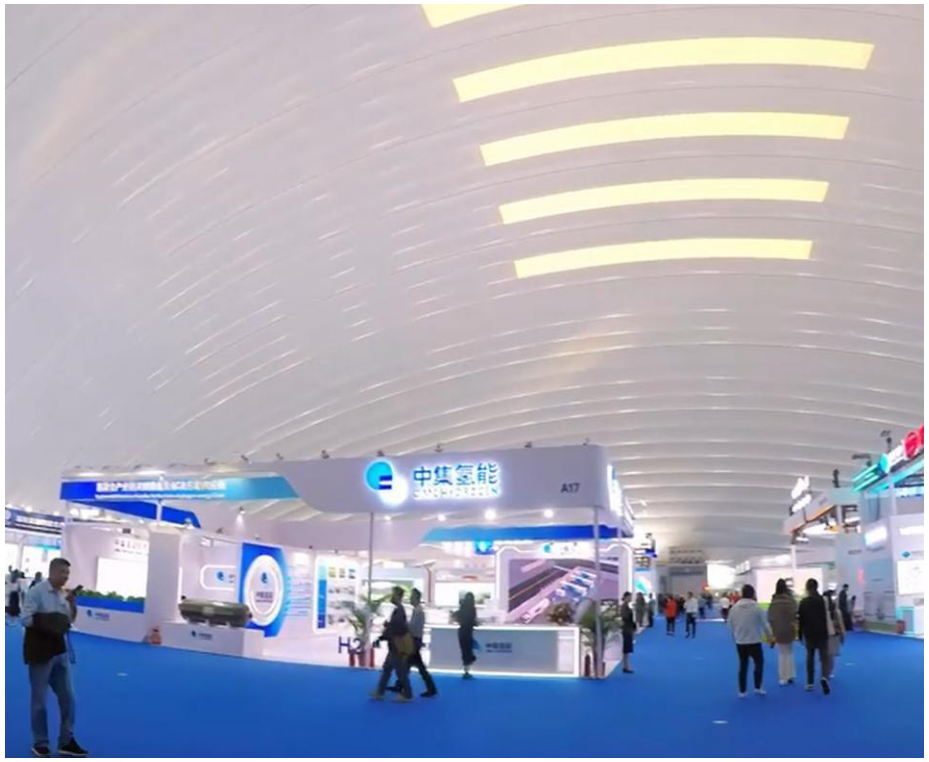
1. Shenzhen International Low Carbon City

2023, Shenzhen, Guangdong

Done #1: D143n, H38n, Area 16758sqn
Done #2: D30n, H11n, Area 707sqn

SILCC is consist of two air domes, dome No.1 is exhibition center, No.2 is banquet hall. Dome No. 1 with area of 16,758 m^2, is the single largest air dome exhibition center in the world, for which total 16 revolving doors, 44 exit doors and 2 interlocking doors were built. The dome material is made of 3 layers, with transparent strips on top to allow natural light to penetrate. In nighttime, architecture lighting gives it a extra-ordinary aesthetic appearance.



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2. Zibo City Center, Shandong Province
201G

Done #1: 6231зqn, Done #2: GG60зqn, Done #3: GG60зqn

The city center of Zibo City, Shandong Province, is used as exhibition center and other city activities. These Air Domes are landmark of Zibo City.

Multipurpose Air Dome in Amusement Park

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3. Happy Valley, Nanjing

201G, 3D Cinena G Activity Done

Outer Done: 42n dia.; 1,385 n²	Double Envelop Design with changing LED screen effect
Inner Done: 40n dia.; 1,256 n²	

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4. Yinchuan Municipal Planning Exhibition Hall Gansu Province

L70n x W48.8n x H16.5n	3416㎡

This Yinchuan City Municipal Planning Exhibition Hall is in the Yinchuan Botanical Park, which now is one of the landmark in this area because of the colorful design.

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5. Tongji University Zhihui Yunding Conference Dome

2018 Shanghai

L 80 n x W 60 n x H 20 n 4,800 n²

Located in the Future Square, Jiading Campus, Tongji University, the Multi-function Conference Dome can accommodate nearly 5,000 people at the same time. It was used as the main venue for the 2018 World Entrepreneurship Innovation Expo, where total seven essential forums and summits were hold

6. Yangzhou Conference Hall
201G

L70n x W36n x H12.5n	252Gn²

This dome is the main conference hall of Yangzhou International Tourism Festival, with fiber sound-proof board on the roof, makes it a perfect place to hold the conference.

7. Jilin Changbai Mountain Ice s Snow Dome
2017 International Event G Training Center

L45n xW45n xH17n	2,025n²
L45n xW34n xH11n	1,530n²

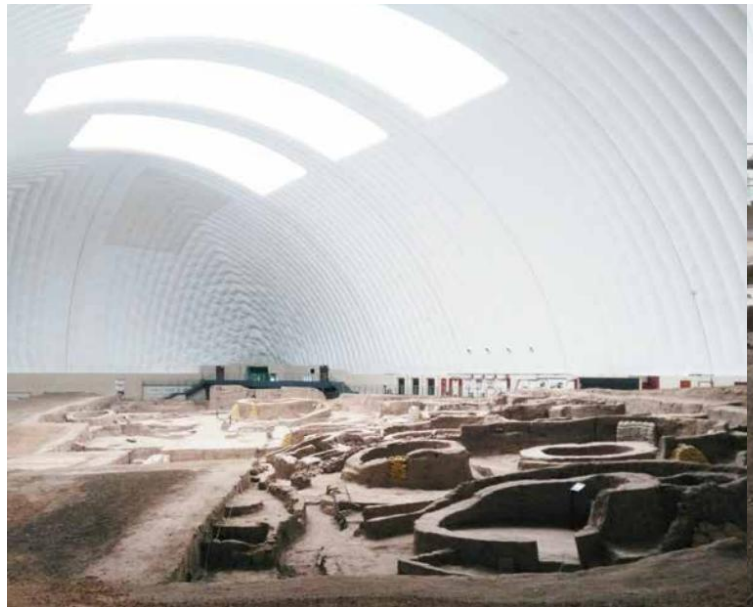
Ideally located at 42 degrees north latitude, known as the world golden snow belt, Changbai Mountain has world class powder snow resources. The Changbai International Event s Training Center, made of two air domes, was built as full-fledge training hall for multi-functional indoor training venues, exhibition and event venues.

8. Sites of Museum Dome

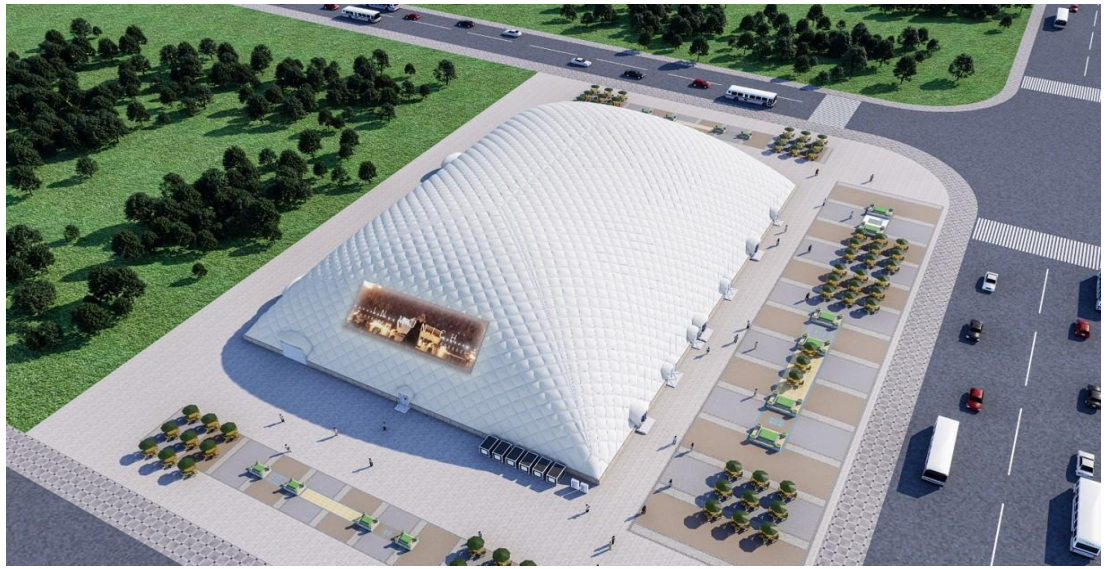
201C Chifeng, Archeology Museun

L 137 n x W 70 n x H 25 n G,5G0 n²

This archeology site is the one of the most important archaeological discovery in Northeast Asia since 2000 and one of the 2006 Top Ten New Archaeological Discoveries in China due to its about 4000 years history. Air Dome was built to protect the archeology by completely separating the site with external environment due to its perfect sealing characteristics. The temperature and humidity inside the air dome can be adjusted through the smart monitoring system, which meets the indoor environment requirements for cultural relics. Another reason to choose air dome as building structure is because there is a railway tunnel under the site, no pile foundation can be made, due to which traditional structure could not be built.



BroadiMax Design



Broadimax Video

Broadwell has developed special design using LED Conformal Screen with high resolution which is called as **BroadiMax**. LED screen is environment friendly and consumes less power. BoadiMax is optional which further enhances the commercial value of Event Centers

Coal s Bulk Material Storage Air Domes

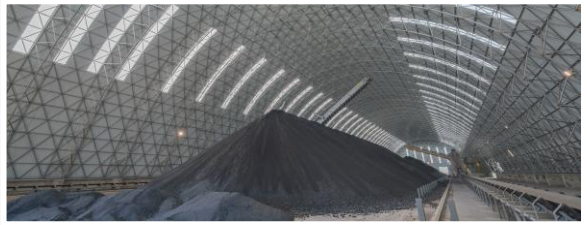
Covered coal storage for power plants is highly desirable because in addition to pollution control, it prevents coal from deterioration due to rain/ moisture/ adverse weather conditions and therefore increases the productivity of power plant. Traditional steel structure of such large span without column supports in between becomes very heavy and expensive which makes the steel structure unviable in most of the cases. Whereas Air Dome does not require any column and beam support and may be built with span up to 200m at much lower cost than traditional steel structure and in very short time. This makes Coal Air Dome highly beneficial for coal storage for power plants. In addition to coal, Air Dome is widely used for storage of other bulk material including granary.

Perfect solution for covered coal storage

Covered coal storage for thermal power plants is highly desirable because in addition to pollution control, it prevents coal from deterioration due to rain/ moisture/ adverse weather conditions and therefore increases the productivity of power plant.

Due to stacker-reclaimer, coal covered storage is essentially required to be built with larger span (~ minimum 120m). Traditional steel structure of such large span without column supports in between becomes very heavy and expensive which makes the steel structure unviable in most of the cases.

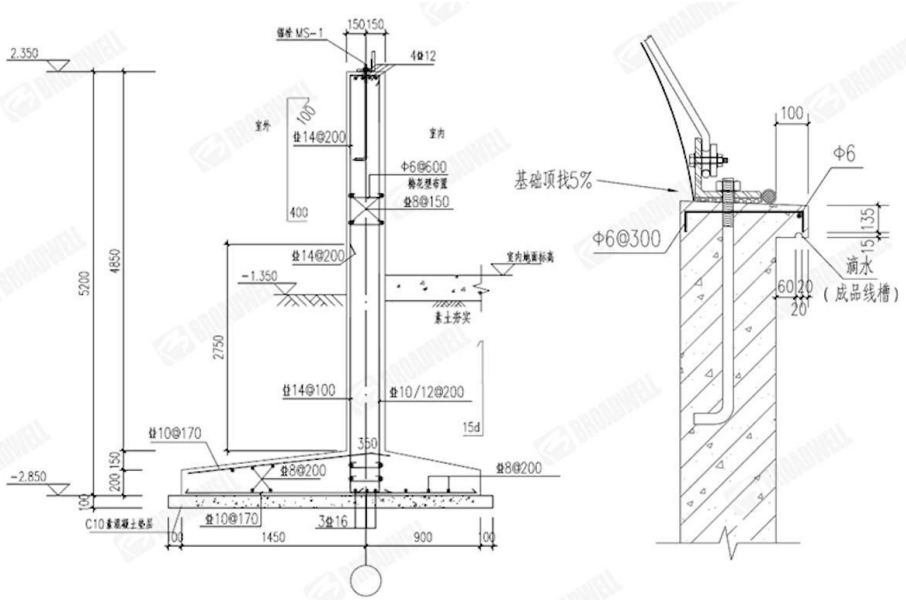
BROADWELL AIRDOME provides perfect solution for covered coal storage as per comparison shown below:



	Traditional Steel Structure	Air Dome
Cost	Steel structure with large span without column support is very costly and therefore, becomes unviable in many cases	Air Dome does not require column or beam support and may be built with large span up to 200m. Air Dome can be built at substantially lower cost as compared to equivalent size steel structure
Time	Construction takes longer time.	Air Dome of even bigger size (~say more than 50,000 m2) may be completed in 4 ½ -5 months time, which a traditional steel of equivalent size will take not less than 12-18 months
Maintenance	Higher maintenance cost due to corrosion of steel	Very low maintenance and operating cost.
Pollution	Not closed from all sides, so some coal dust pollution will always be there	Airtight structure, prevents fully from coal duct going out of Dome.

Patented Belt Conveyor Sealing arrangement/ Civil works

Belt Conveyor sealing technology is one of the many patented designs of Broadwell which allows mounting of belt conveyor with air sealing system.



Typical foundation details

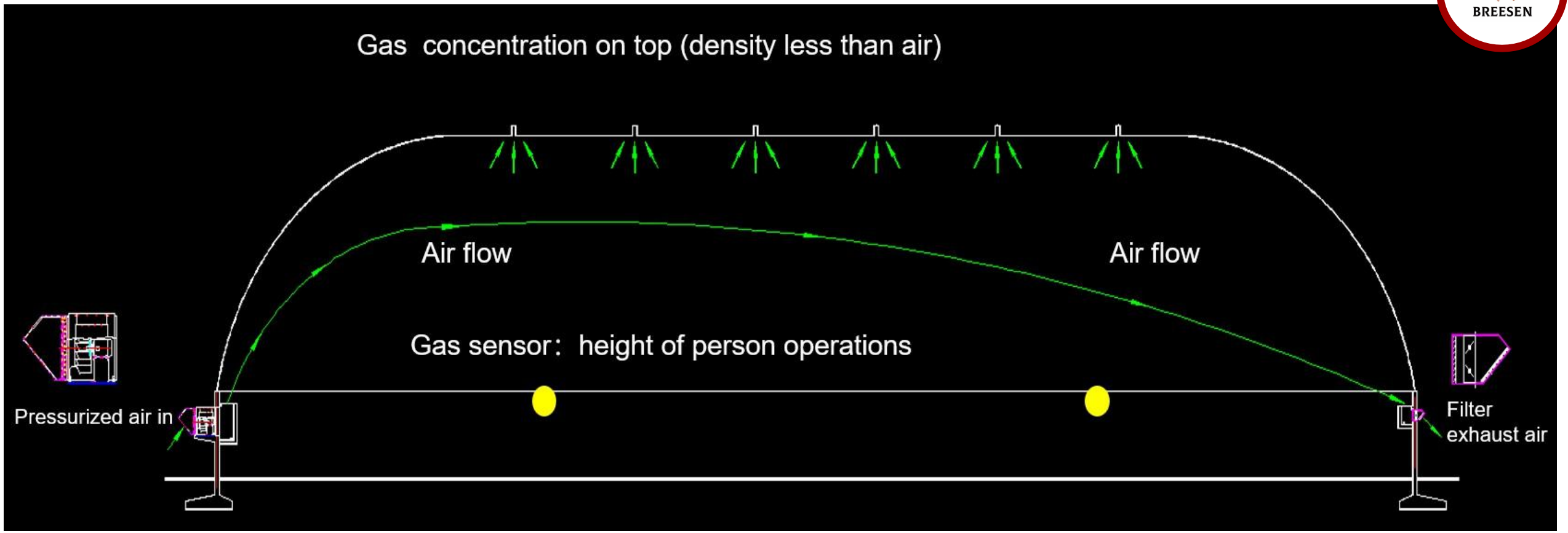
Retaining wall

Due to light weight of Air Dome and less load downward, civil foundations are simple and cost effective.

Though Air Dome may be mounted from the ground level, it is preferrable to build some height of retaining wall over foundation to avoid damage of membrane due to rain or due to accidental movement of vehicle/ equipment.

Height of retaining wall may be 1 mtr to 3 mtr, or more, depending upon the case-to-case basis.

Air distribution system



Air Dome for coal storage adopts a controlled air distribution system using variable drive blowers and exhaust fans to release overpressure. Exhaust valve with anti-dust bags and dust removal plates control and minimize secondary dust pollution inside Dome. For coal Air Dome, sprinkler system may also be installed to sprinkle the water in case of excessive dust or high temperature due to self-combustion of coal sensed by sensors. Air outlets are set at the top of Dome so that accumulated gas discharged by positive pressure inside Dome.

1. Zhejiang Binhai Coal Domes

2020 Shaoxing, Zhejiang

L 285 n x W 103 n	2G,355 n²
L 286 n x W G7 n x H 3G n	27,742 n²

These Air Domes were built on existing site without disturbing Stacker-Reclaimer, Belt Conveyor and other coal handling equipments. Also, the coal domes are divided into multiple compartments to handle different variety of coals.

These coal domes are equipped with **Trestle Bridge Coal Falling Design (Broadwell Patented)**.

Air Domes helped the power plant to reduce coal dust pollution substantially and also reduced emission of toxic gases in atmosphere, like Carbon Dioxide, Sulphur Dioxide, Nitrogen Oxides, Ammonia, etc.

2. Renqiu Thermal Power Plant
2018 Coal Storage, Heibe Province

L 16Gn x W 106.5 n x H 3Gn	17,GG8.5 n²
L 113 n x W 106.5 n x H 3Gn	12,034.5 n²

The Power Plant is using two Air Domes for coal storage, both equipped with Stacker Reclaimer for coal handling operations.

3. Ligang Power Station
201G Jiangsu Province

L 364 n x W G0 n x H 30 n	32,760 n²

One of the leading power company, widely restructured coal handling system to minimize coal dust pollution and to adopt systematic mechanized coal handling system.

4. Shenhua Group – Bayannur Coal Domes

2012 Inner Mongolia

L 232 n x W 100 n x H 36 n	23,200 n²
L 400 n x W 110 n x H 42 n	44,000 n²

Shenhua Group Bayannur Coal Domes is the first coal dome project in China. The two Air Domes provide **total storage capacity of coal more than 650,000 ton.** These Air Domes were provided with patented technology of belt conveyor sealing and both Air Domes are using Stacker and Reclaimer with fully mechanized coal handling system. The location experiences heavy wind and dust due to desert area and Air Domes are working with no problems since last more than ten years.

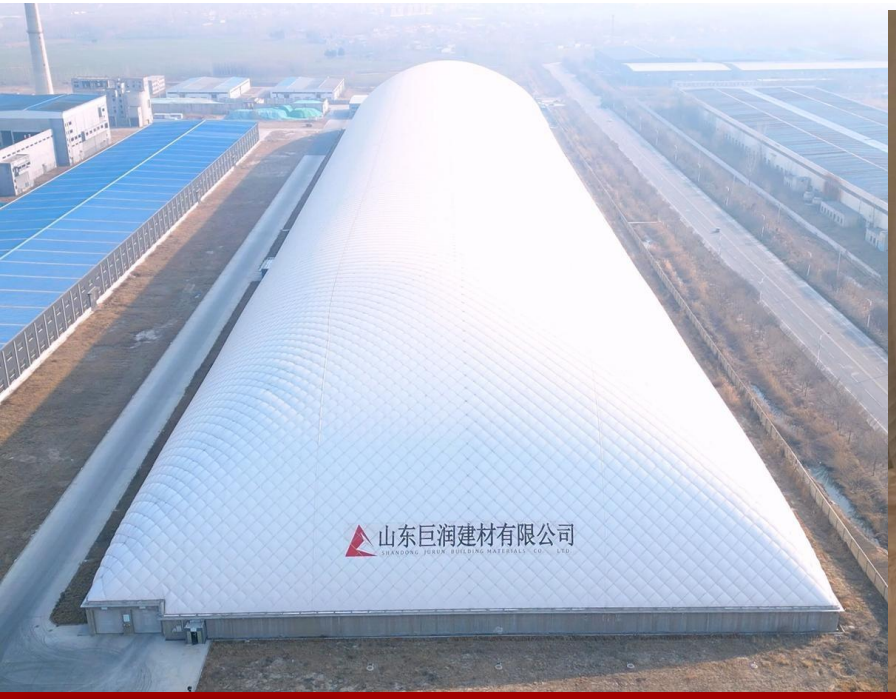
5. Shandong Jurun Building Material Co. Ltd.

201C Sand raw naterial storage, Glass Indl. Park, Shandong

L 570 n x W 120 n x H 40 n 68,400 n ²

The Shandong Jurun Air Dome was created for storage of sand for glass manufacturing industry, with primary aim of pollution control, energy conservation and safe operation.

The Air Dome is provided with transparent strip at top which allows sun light inside and saves substantial electrical consumption by switching off day lights, and other parts of Air Dome provided with opaque membrane which ensures no excessive temperature inside.



6. Xixiang Aluminum

2018 Al. raw naterial storage, Henan Province

L 200 n x W 110 n x H 36 n 22,000 n²

The membrane is specially designed with seven layers, each with specific purpose.

The Air Dome is provided with 4 doors for trucks movement, 1 revolving door for personnel movement, and 4 emergency doors.

Ventilation system ensures fresh and dry air inside the dome.

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7. China Merchants Port
2015 Granary Storage, Shenzhen

L 160 m x W 50 m x H 20 m	8,000 m²

The project is the first granary storage using Air Dome structure in China. The granary dome is not only leakproof, moisture-proof, heat-insulated, closed and ventilated, but also has the advantages that traditional steel structure granaries can't match, i.e., good sealing performance, strong anti-corrosion ability, seawater erosion resistance; light weight, suitable for construction in soft coastal areas. Additionally, the membrane has self-cleaning characteristics, hence maintenance-free, and cost effective.

The granary dome is equipped with a vehicle door and an intelligent mobile monitoring system to monitor the warehouse in real time to ensure stable operation of air pressure, temperature, humidity and air volume, saving energy and ensuring safety.

8. Shen Zhen Grain Group Co.

201C Grain Storage, Dongguang, Guangdong

L 115 n x W 50 n x H 21.5 n 5,750 n²

The project is the second granary storage using Air Dome structure in China. The storage capacity is 20,000 ton.

The air dome is a maintenance-free building with excellent self-cleaning properties. Since no steel, iron and other traditional building materials are used, there is no need to worry about rust protection in the future. During operation, maintenance costs will extremely low.

Factories/ Warehouses Air Domes

Because of inherent design of Broadwell Air Domes which does not requires columns and beams, and because Air Dome may be built with large span, Broadwell Air Dome provides higher space utilization and a highly cost-effective solution for building factories/ workshops/ warehouses in short time.

For special requirements of some electronic factories of highly purified air inside, Broadwell has it patented solution of creating bacteria free and air with almost no pollution.

Broadwell's own factory

1. Broadwell Manufacturing Unit
2015 Yancheng, Jiangsu Province

Air Done -1	G,000 n2
Air Done - 2	6,400 n2

Broadwell's own manufacturing unit is made up of two Air Domes. The unique features of these Air Domes are

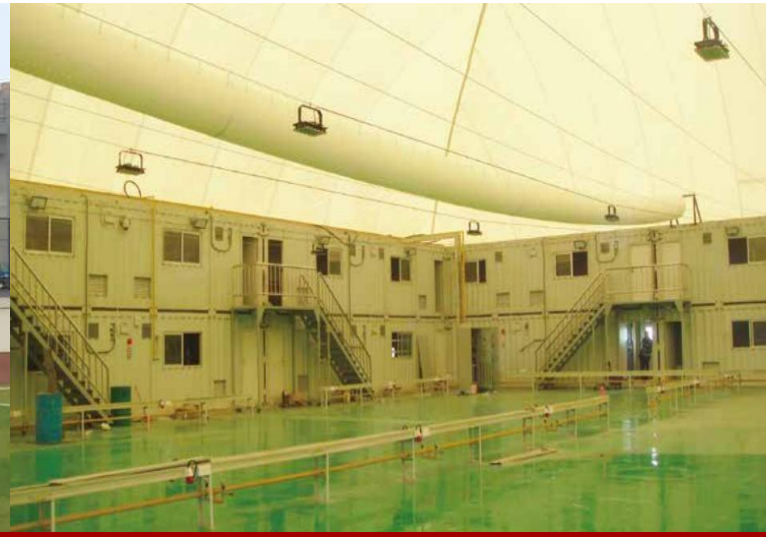
- Air Dome designed as **Green Building,** using solar panels for power, saves substantial energy for Air Conditioning including cooling and heating.
- Total area of 15,400 m^2 with two air domes of 6,000 m^2 and 6,400 m^2 respectively, which includes office as well as manufacturing facilities.
- Equipped with the most advanced membrane and steel cable production and processing equipment to ensure high quality and efficient production. Annual production capacity is 5 million square meters.

2. Foxconn's Clean Room Factory
2011 Chengdu

L 61 n x W 42 n x H 17 n	2,562 n²
L 61 n x W 42 n x H 17 n	2,562 n²

The Foxconn facility for Apple Mobile Phone was built with following specific criteria:

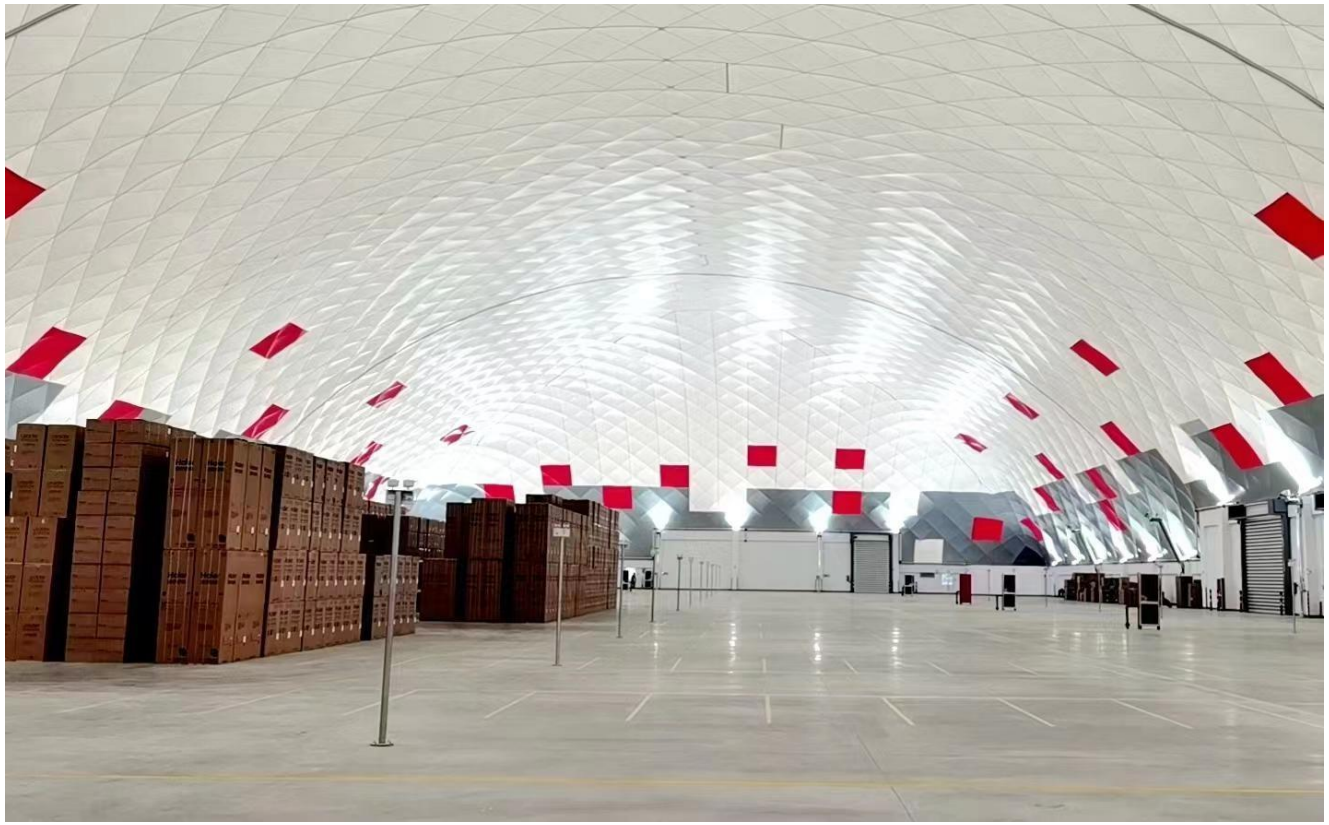
- High clean air. Equipped with high quality air filtering and circulation system, Air Dome is an ideal solution to keep space fully dust free.
- Energy conservation. Transparent membrane partially provided which resulted in energy saving by about 40%.
- Movable Plant. Built with containers air domes, made it easy to move the whole plant to another location in least time and least cost.



3. Home Appliances Storage

2021 Zi Bo, Shandong Province

L 145n x W 100 n	14,500 n ²

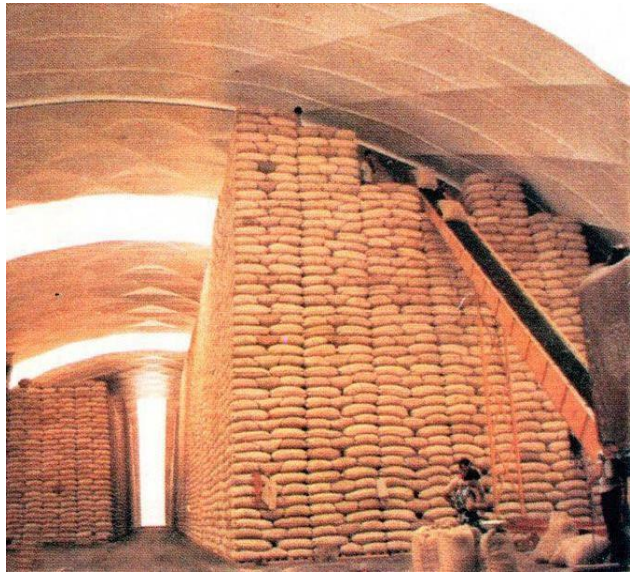


The Air Dome is used as storage of home appliances which is a logistic building. It was built in 5 months.

4. Logistics - Warehouse
Various Applications

Air Dome is an ideal solution for other general logistics purpose. It has been used for courier services, storage of bulk material in bags, and several other applications. Air Dome may be tailored according to specific needs of logistic companies.

Air Domes may be provided with insulation material and temperature control system for maintaining suitable temperature inside the Air Dome.



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5. Sewage Treatment Pool Air Dome

2015 Yancheng, Jiangsu, China **5,G00 n²**

The application of air dome technology to sewage treatment plants has many advantages, like superior sealing characteristics, achieves excellent results in avoiding secondary pollution when it is used for sewage pools, sewage floors and landfills. The sewage treatment air dome pool can be quickly installed, relocated and reused. PVC membrane has excellent airtightness characteristics, can effectively block toxic and harmful gases, and has good corrosion resistance s UV resistance. STP Plant steel structures normally subject to severe corrosion and rusting which causes damage to building structure, which all can be eliminated by using Air Dome.

Broadwell Air Domes

Indonesia Projects

1. Spike Air Dome
Feb-2025, Event Air Dones

Dia G6n x 56n xH 15.6n	4,247n²
Dia G6n x 52n xH 15.6n	3,G50n²
Dia 43n x H 15.6n	1,451n²

Spike Air Dome is of unique design consisting of three layer membranes and acoustic panels for sound echo absorption.

This has been built in highly posh area of new developing area, **CBD PIK-2**, for one of the top Real Estate Developer and top business conglomerate – **Agung Sedayu Group.** Spike Air Dome is a landmark in PIK-2 which is of great attraction point.

Spike Air Dome, consisting three Air Domes, is meant for Exhibition/ Concerts/ Events. Two bigger Air Domes were implemented by Breesen. The Air Dome is built on 4 m high wall with total height of 9.6m.

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2. Sports Air Dome
May-2025, Central Jakarta

L 124 n x W 45 n x H 20 n	5,580 n²

This Sports Air Dome is built in Central Jakarta which is surrounded by upper class high rise residential and commercial buildings. One of the poshest area of Jakarta.

Air Dome consists Badminton Courts, Paddle Sports Courts and Tennis Courts, and cafeteria.

Total area of Air Dome 5,580 m^2, one of the biggest size of Sports Air Dome globally, built for leading business conglomerate of Indonesia, known as FKS Group. Height of Air Dome is 20m, which is built on 2m high wall, making total height 22m.

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