

Broadwell

Sport & Entertainment

Use Air Dome Project introduction





CHAPTER 1
ABOUT BROADWELL
AIR DOME

ABOUT BROADWELL AIR DOME

A Full Air Dome System



ABOUT BROADWELL AIR DOME



Features

Easy relocation and delivery

Easily dismantled, relocated and multi-time reuse



Convenient Construction

Site installation need only 10 days at the least



Totally enclosed structure

Safety and environment protection

With very low operation and maintenance cost

Save more than 60% of energy than traditional structures

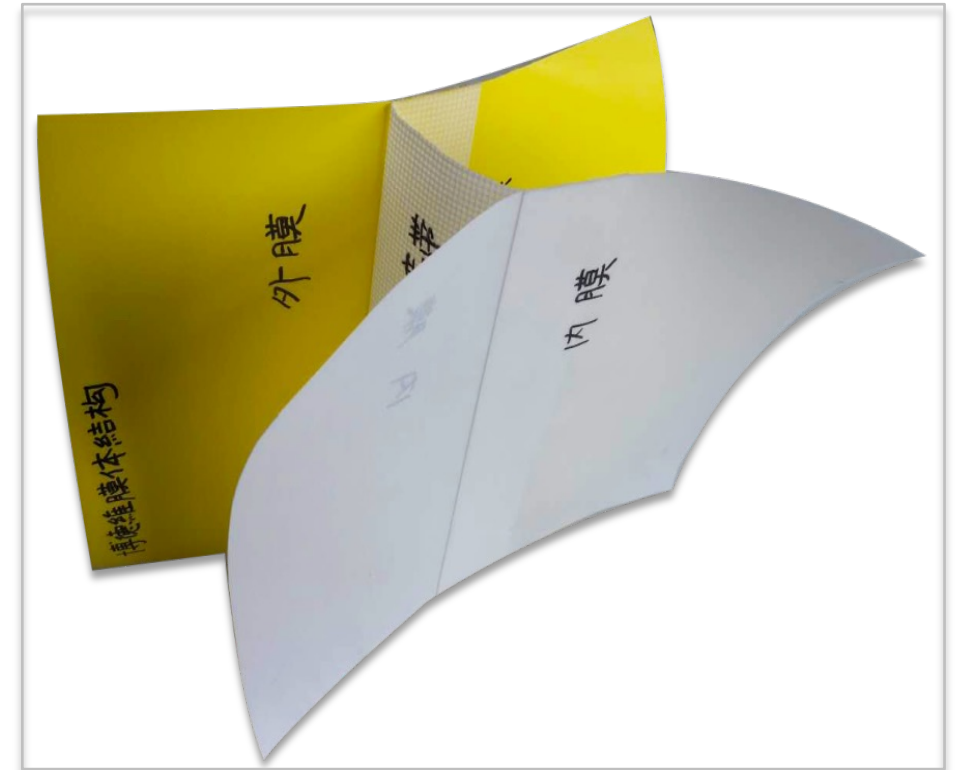
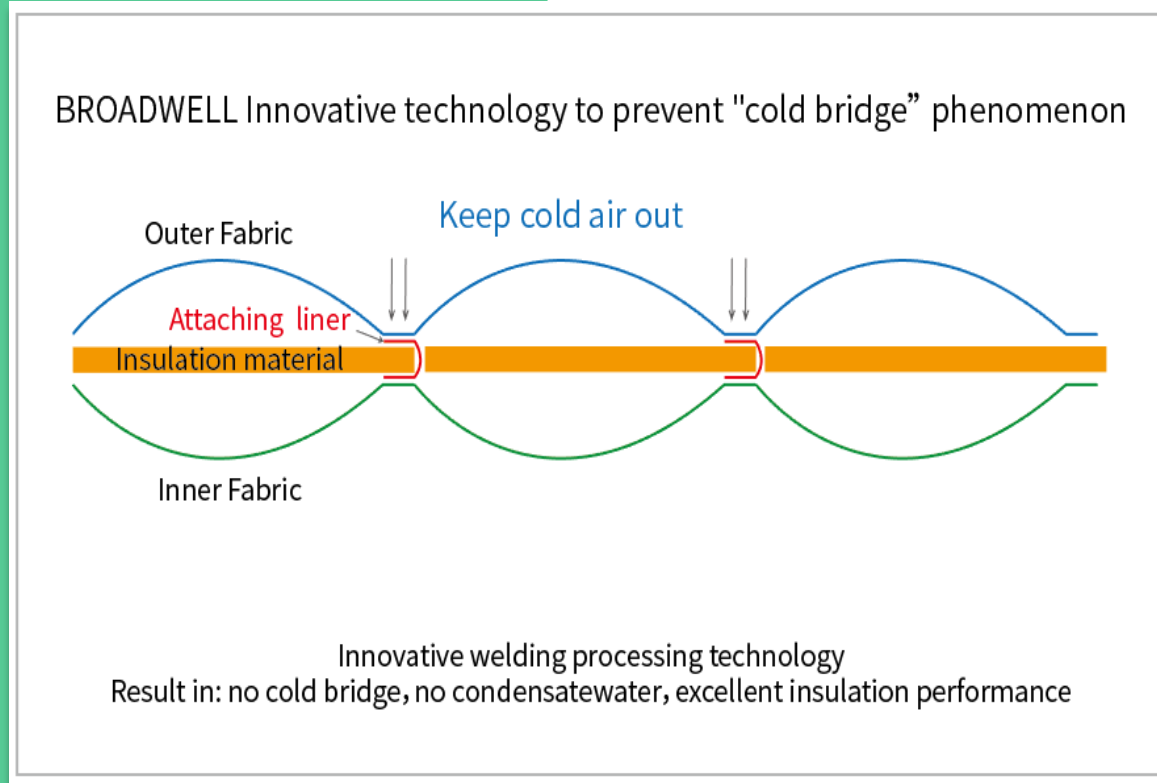
Suitable for extremely worse weather condition

ABOUT BROADWELL AIR DOME



Unique Fabric Welding Technology

Our unique and advanced fabric welding technology can avoid cold-bridge.



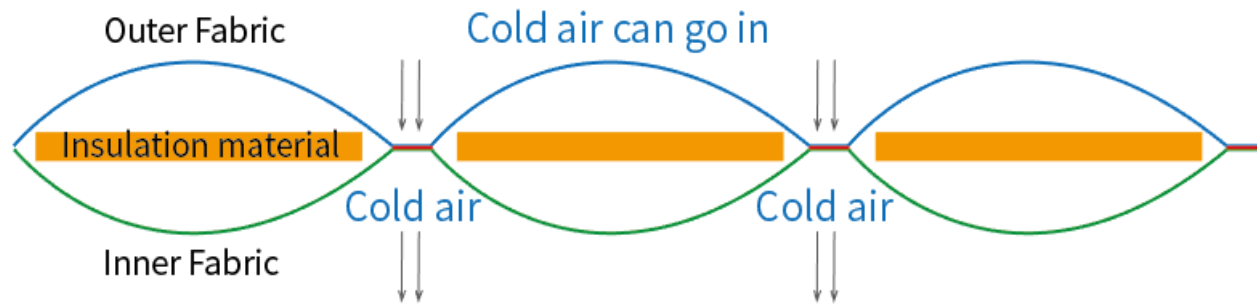
This unique welding process is more complicated and cost high, but it ensure the excellent insulation performance, greatly reduce energy consumption, and this innovative design of three - layer membrane structure, has applied for national patent.

ABOUT BROADWELL AIR DOME



Normal Fabric Welding Technology

The other companies' fabric processing technology



Outer Fabric and Inner Fabric are welded together
Result in: generate cold bridge and condensate water, poor insulation performance



With normal fabric welding technology, the welding seam will have cold bridge, which will cause energy lost and condensation in the area welding seam.

ABOUT BROADWELL AIR DOME



Manufacturing

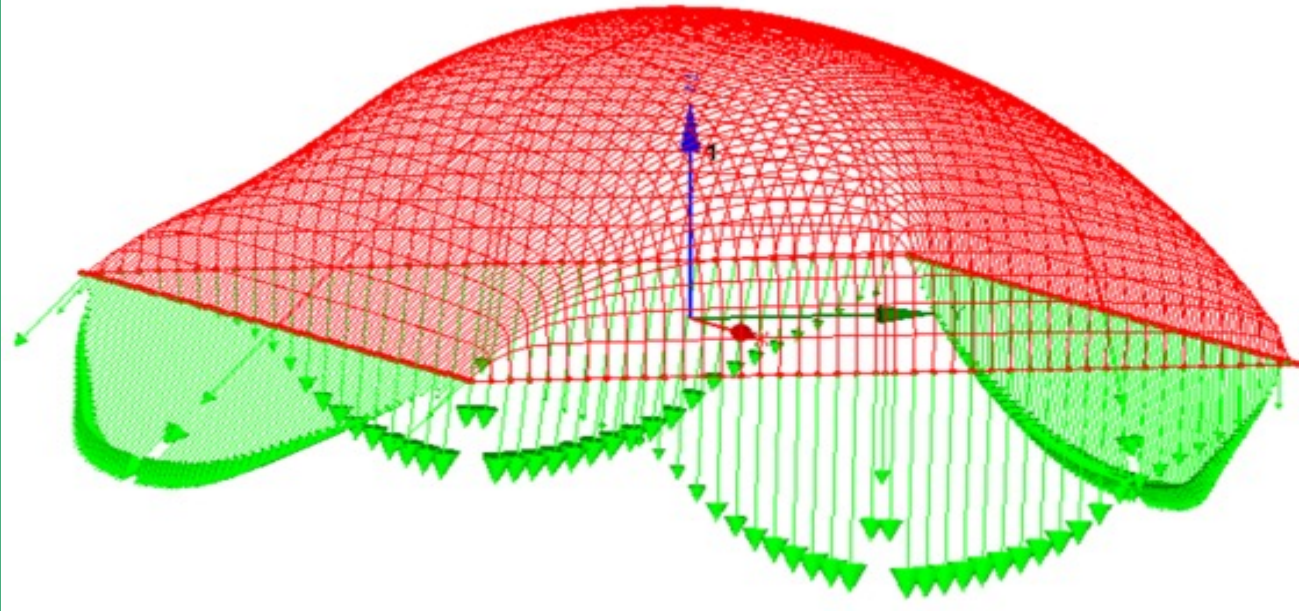
- In our manufacturing center, the dust-free workshop is also made by air dome, which is also the biggest air dome manufacturing center in the world, the workshops is up to **100,000-grade cleanliness**.
- Now our annual capacity is up to **5 million square meter**, equipped with State of the Art Machinery.
- Most part of air dome components are finished in the factory then ship to the site. Which can **save more than 30% of resource to build a stadium compare with traditional structures**, during the installation, **almost no construction waste in the site installation**. And the site installation work is just **10-30 days**.



ABOUT BROADWELL AIR DOME



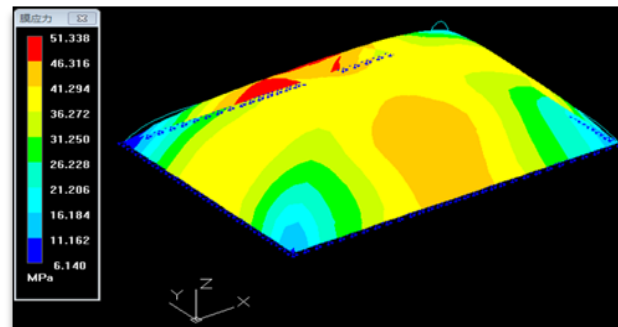
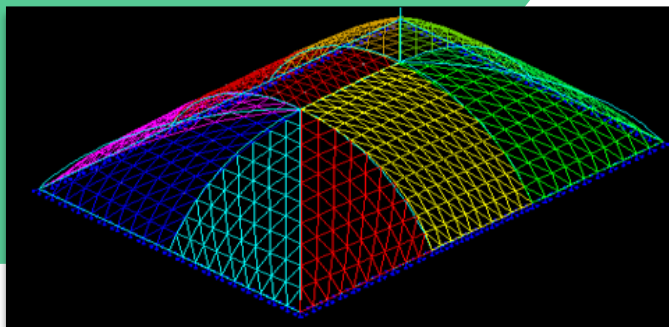
Structural Calculation



We have a number of structural mechanics experts and keep close cooperation with the experts team from Tongji University, Xi 'An University of Architecture and other universities or institute. We ensure that every project through the serious architecture calculation, with strictly mechanical safety guarantee, but not simply building on experience.

We use the Calculation Software: EASY from Germany, 3D3SV12 from Tongji University, Shanghai, both of them are the professional software for air dome design. And we are following the design standard 《Air Structures Design Standards Manual》 ASCE17-96 (US. Standard) and some other design standard.

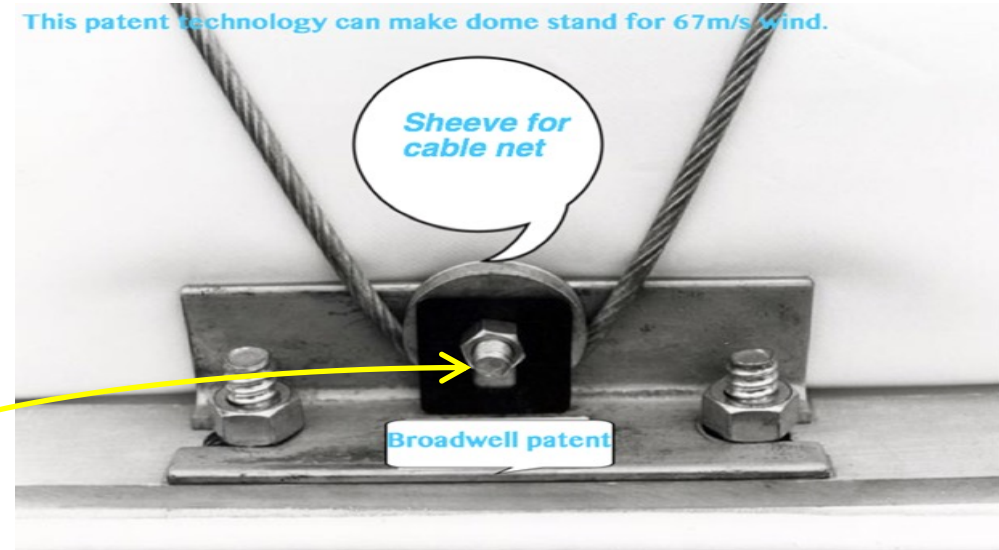
Based on these two calculation results, we will cross check with our database (we have the world biggest air dome database including hundreds of air domes in different locations, environment, dimensions, functions, etc.) to find the best solution.



ABOUT BROADWELL AIR DOME



Unique Bias Harness Cable Net System



- ✓ Evenly distributes both internal uplift force and external force to the anchorage system, reduce the force on membrane , Provides optimal structural stability, **can resist the attack of wind and blizzard**, extends the service life of the building ;
- ✓ **Withstand 67m/s hurricanes (level16 typhoon) and more than 250kg/sqm of snow ;**
- ✓ Lead the shape of air dome change little under high wind load: Under high winds, the displacement of BROADWELL air dome less than 10cm, while others are more than 2m, that is dangerous.
- ✓ Our Bias Harness Cable Net System is the **key technology** for the air dome in the area like **South-east Asia and Middle East**, which the temperature difference is very big, without the protection of Bias Harness Cable Net System, the strength of fabric welding seam will be reduced quickly (**the strength of welding seam will reduce more than 70% when the temperature is beyond 40°C**), which makes the welding seam more easily to crack, **the service life of air dome will be reduced**, too.

ABOUT BROADWELL AIR DOME



Unique Bias Harness Cable Net System

Can prevent membrane welding seam from cracking at high temperature.

Based on the study, when outside temp higher than 40°C, the strength of membrane welding strength will dramatically reduce, sometimes more than 70%, if without cable net, all air press force is on the membrane, and due to high temp membrane welding seam become the weakest part of the structure suffered the press force, that dramatically reduce the membrane service life and lead high structure cracking risk. So this makes **the cable harness system to be the key technology of air dome in hot weather area such as Mid-east.**

Air press force on the cable



Air press force on membrane welding seam



ABOUT BROADWELL AIR DOME



Unique Bias Harness Cable Net System

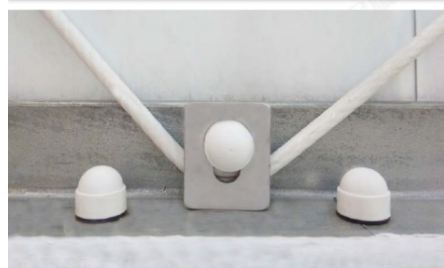
- ☆ Unique patented bias-harness cable net system with aesthetic design ;
- ☆ Completely cover the outer membrane, greatly reduce the stress of the membrane material, extend the service life ;
- ☆ Force transfer path is clear
Fabric → Cable net → Anchoring system → Anchorage → Foundation , Calculations meet architectural code ;
- ☆ According to the 50-year load standard for the design of the structure, withstand 67 m/s wind (level16 typhoon) and more than 250 kg/m² of snow;
- ☆ Deformation is small , less than 20cm , without cable net over 2m ;
- ☆ Under storm day, internal pressure can increased to 500-600pa, withstand the snow.

Table 1: Standard Load Calculation for Air Domes without Cable Harness System

Width/Span	Height	Radius	Length	Load on Anchor System		Load on Fabric			Load on Fabric
				Real Load	Design Load	Warp Direction	Across Warp	Comprehensive Load	
M	M	M	M	KG/M	KG/M	KG/M	KG/M	KG/M	KG/M
12.192	6.096	6.096	24.384	479.6	959	46.6	703.9	649.7	703.9
15.24	7.62	7.62	45.72	600.3	1201	57.4	981.8	920.7	983.1
18.288	9.144	9.144	60.96	719.5	1440	68.9	1209.6	1153.3	1209.6
21.336	9.144	10.795	91.44	749.3	1500	83.8	1512.9	1416.4	1512.9
24.384	9.753	12.496	91.44	817.8	1634	98.7	1847.7	2066.3	2066.3
30.48	10.363	16.388	91.44	920.6	1841	141.4	2015.9	2414.8	2414.8
35.966	12.192	19.359	91.44	1084.4	2169	167	2188.6	2574.5	2574.5
45.72	18.288	23.432	152.4	1532.8	3064	185.1	3071	3486.3	3486.3

Table 2: Standard Load Calculation for Air Domes with Cable Harness System

Width/Span	Height	Pressure	Wind Speed	Load on Anchor System		Load on Cable System		Deflection of Fabric	Load on Fabric
				Real Load	Design Load	Real Load	Design Load		
M	M	Pa	KM/H	KG/M	KG/M	KG	KG	M	KG/M
17.68	8.53	375	120.7	678	1356	1239.4	2479	0.156	109.9
17.68	8.53	750	160.9	1244	2488	2275	4549	0.168	196.4
30.48	11.58	375	120.7	988	1975	1805	3611	0.126	104.7
30.48	11.58	750	160.9	1834	3667	3354	6708	0.139	187.7
35.97	13.41	375	120.7	1150	2300	2104	4209	0.12	102.8
35.97	13.41	750	160.9	2141	4281	3913	7827	0.133	186.6
60.96	18.29	375	120.7	1714	3429	3135	6270	0.106	101.4
60.96	18.29	750	160.9	3228	6456	5903	11807	0.119	181.6



ABOUT BROADWELL AIR DOME



Air Dome Technology Development



First Generation

Air dome without cable system

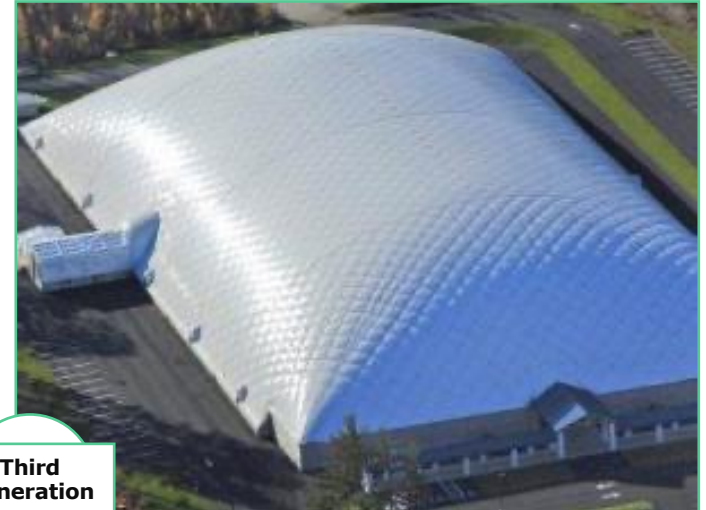
Pressure: 200-400Pa
Wind Load: 32m/s(10-11 level of Typhoon)
Snow Load: 30kg/m²
Oscillating Displacement: More than 0-200cm



Second Generation

Air dome with vertical and horizontal cable system

Pressure: 200-500Pa
Wind Load: 38m/s(12 level of Typhoon)
Snow Load: 40kg/m²
Oscillating Displacement: More than 0-200cm



Third Generation

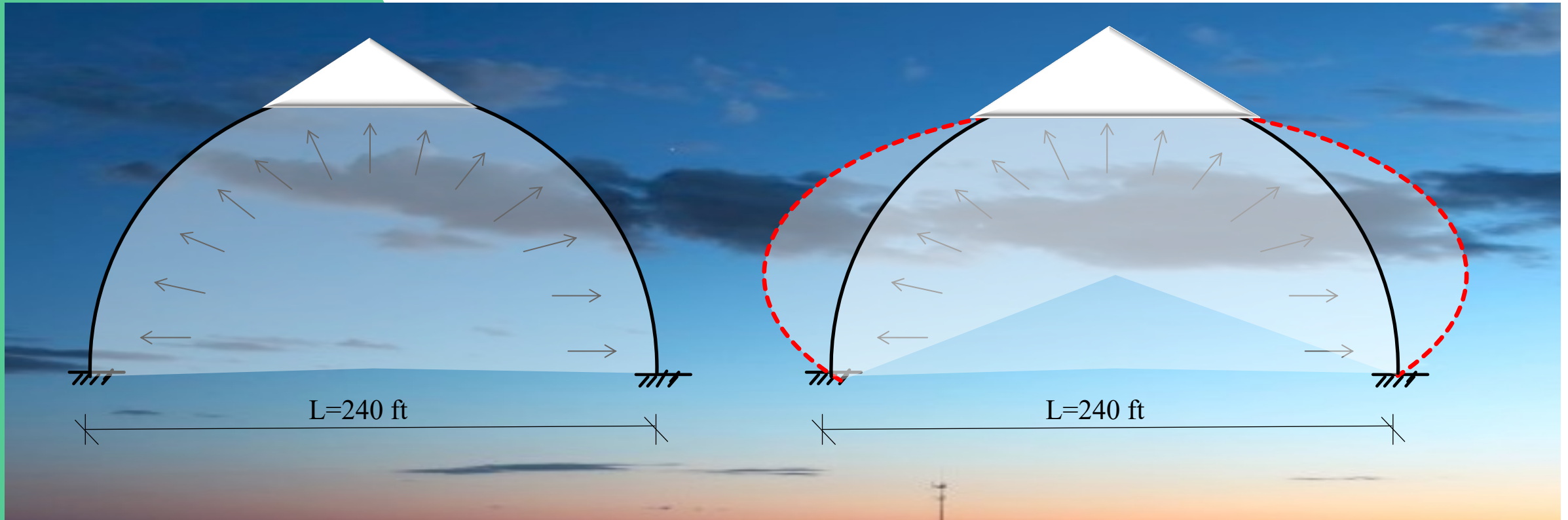
Air dome with Bias-harness cable net system

Pressure: 250-1000Pa
Wind load: 67m/s(More than 16 level of Typhoon)
Snow Load: 250kg/m²
Oscillating Displacement: 0-10cm

ABOUT BROADWELL AIR DOME



Air Dome with Cable Bias Harness Net System



With cable harness system, the structure with much stronger stiffness and dome shape remains unchanged with heavy snow loads. The structure could handle up to 2 inch H₂O internal pressure.

Without cable net system, the structure is just an air bubble with weak stiffness, and the dome shape would be stretched with heavy snow loads.

ABOUT BROADWELL AIR DOME



Air Dome with Cable Bias Harness Net System

Structure Shape

Structure Corner



Our Air Dome

Others Air Dome

Our cable net makes the shape even with stronger stiffness, which is very important when dealing with wind gusts



Our Air Dome

Others Air Dome

With bias-harness cable net system, the corner is protected under the cable net instead of becoming a weak point of the whole membrane.

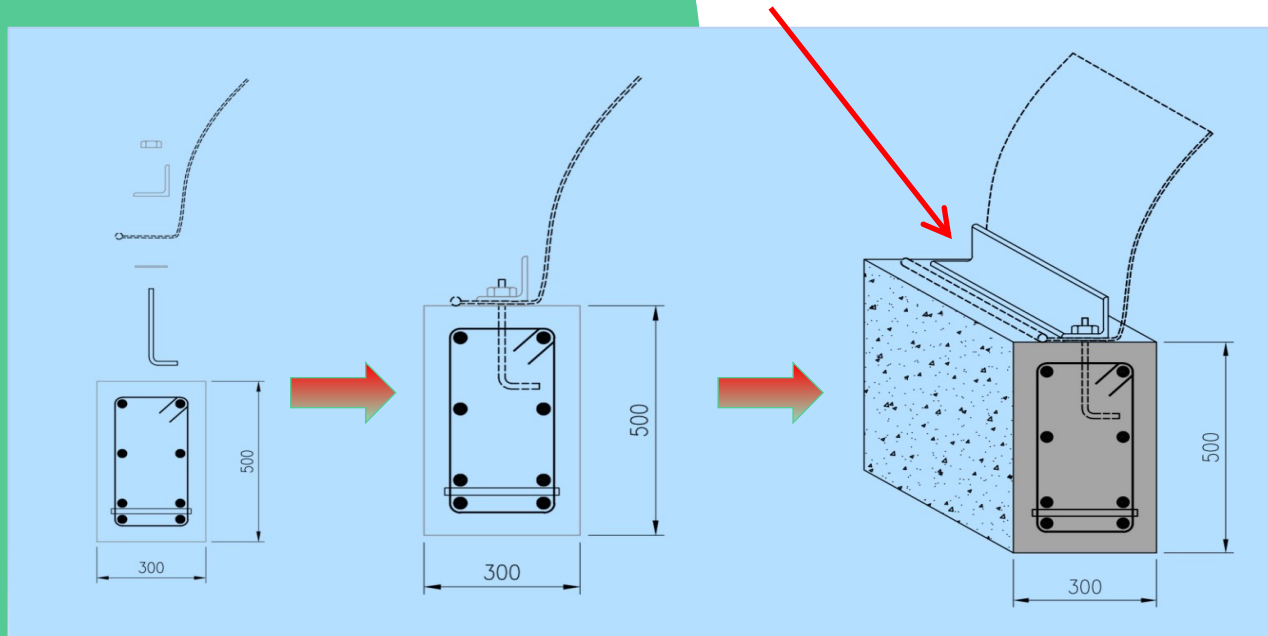
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Anchorage System (for Permanent Dome)

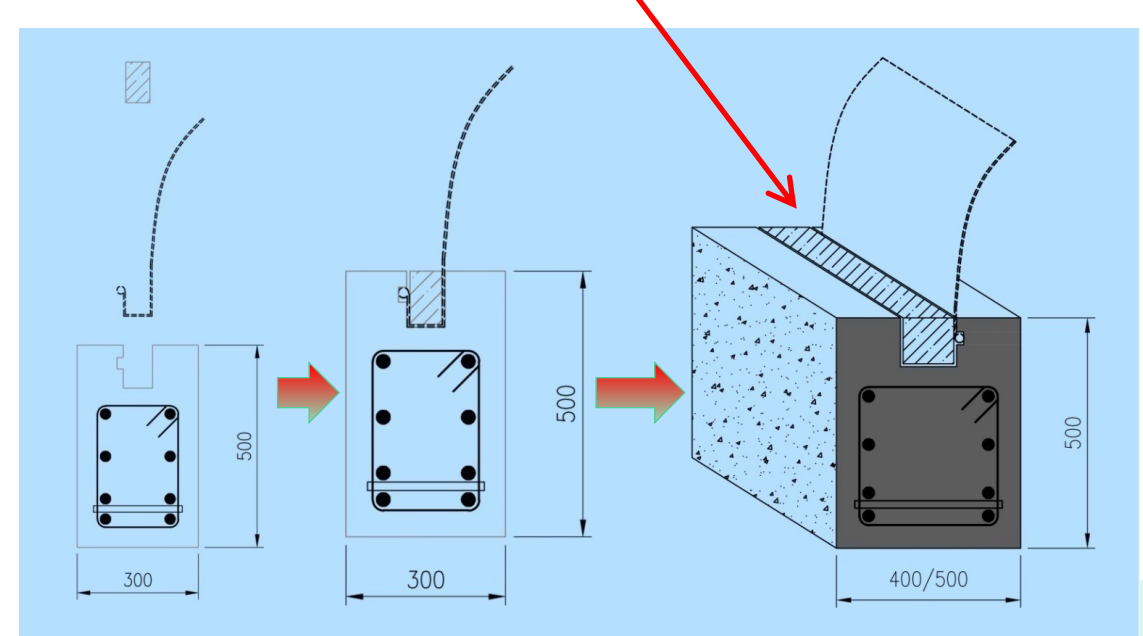
Patented Anchorage System Design

Angle Steel Reinforcement



Anchorage Solution from Other Companies

Wood Beam



ABOUT BROADWELL AIR DOME

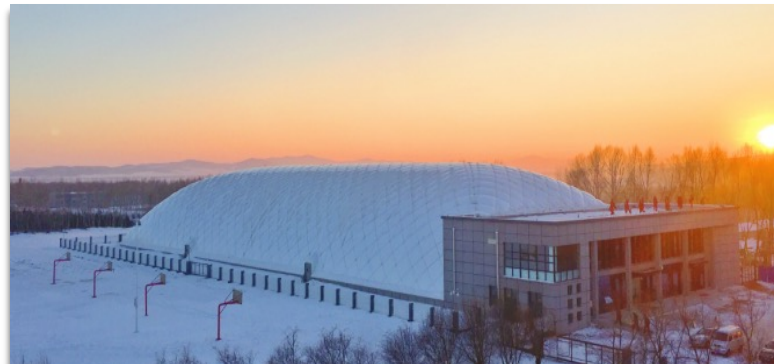
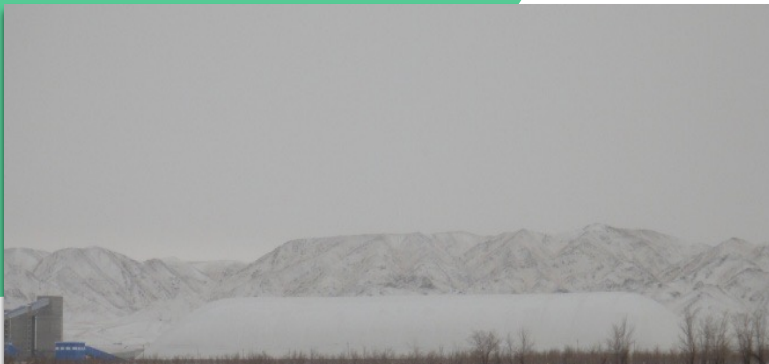


Our Projects in - Strong wind and Heavy snow Regions

The best evidences of safety are the real air domes standing from southern Strong typhoon region to northern heavy snow region. Even we have man projects in Strong typhoon, Heavy wind and High temperature Region, with all our projects, We never have one collapsed, broken and felt down.



Hainan, Canton, Zhejiang (Strong typhoon and High temperature Region)



Minnesota(USA), Xingjiang, Inner Mongolia, NorthEast (Cold, Ultra-low temperature and Strong winds Region)

ABOUT BROADWELL AIR DOME



Our Projects in - Strong wind and Heavy snow Regions

- In September, 2018, Typhoon Mangkhut slashed South China brought up winds of 173 kilometers per hour (107 mph) and gusts of up to 223 kph (138 mph)
- Over 10 of our Air Domes in the Mangkhut's path and all remain up and sounds.
- Dozens of our air domes are located in the Typhoon area.

Our granary dome located in Shekou Port, Shenzhen recorded the highest wind speed of 65m/s during the Typhoon Mangkhut.

Our air dome after Typhoon ▶



ABOUT BROADWELL AIR DOME



Indirect Lighting System

Air Domes are using indirect lighting system, either hanging type or standing type (please refer the image in the next page).

By using the excellent light effective performance of fabric (generally up to 90%), all the lightings are towards to the fabric, which makes the light inside the air dome is very even, and without any glare, it is the perfect solution for the sports stadium.



Hanging Type Indirect Lighting System

ABOUT BROADWELL AIR DOME



Skylight Option

For most of our air domes, we will suggest to use skylight area.

By using the light transmission performance of fabric, the air dome is no need to turn on the light in the day time, which saves a lot of energy on daily lighting.



ABOUT BROADWELL AIR DOME



Door System

Revolving Door

The main entrance for people go in and out



Airlock Door

The access for wheel chair



Emergency Exit

Only for emergency situation



ABOUT BROADWELL AIR DOME



Inflation System-Three-Level Safety System

- The inflation system will include two inflation units, each one will be the backup for another one. Even one unit is failed, another one will keep working to ensure the air dome in normal operation.
- According to normal design, the inflation system will be powered by electricity. Once failure of main power supply, our control system will turn on emergency standby power automatically, to ensure the normal operation of air structure.
- This system is in leading position in the world building industry. It can be custom designed and fabricated. The whole system integrate air supply, heating & cooling AC system and auxiliary parts into one unit, and use remote intelligent control unit to attain function of total control.



ABOUT BROADWELL AIR DOME

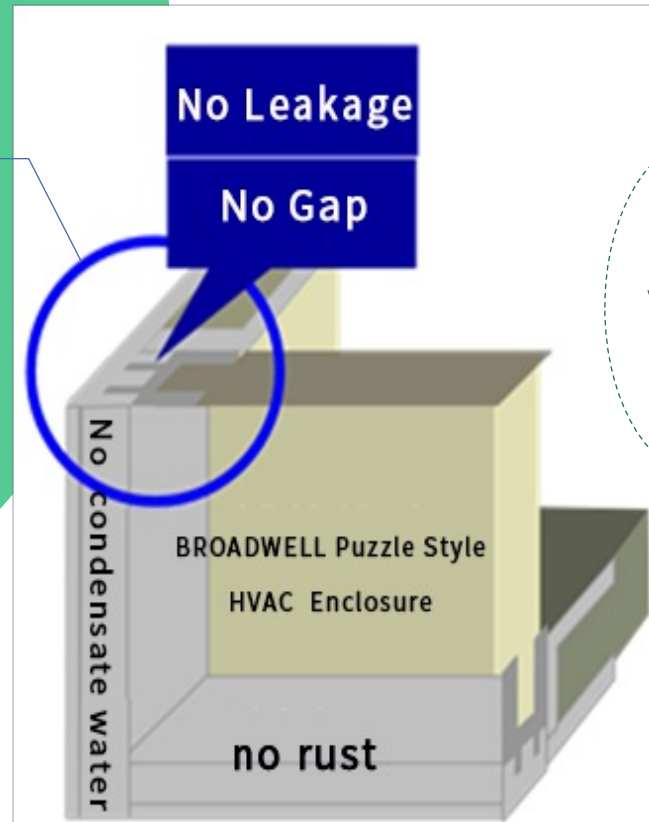


Customized Mechanical System

In addition, energy saving has strictly professional requirement on the Sealing and compression resistance for equipment enclosure , therefore our mechanical unit and HVAC enclosure through **Professional customized, in order to reach minimums energy consumption and increase the equipment service life**

Our HVAC enclosure

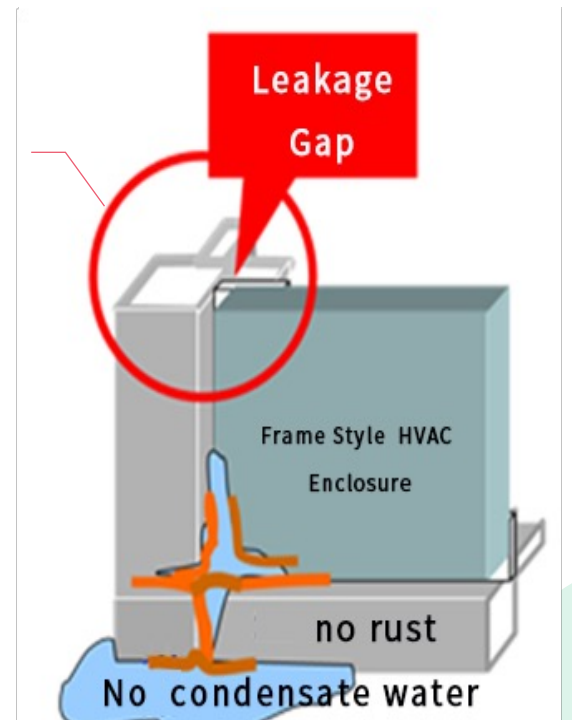
1/3 energy consumption of the others , more safety, maintenance-free, air leakage lower 0.9% , close connection without rust spots.



VS

The others' HVAC Enclosure

Large loss of energy consumption, easy to rust, breeding of bacteria, increase maintenance costs. over 3% air leakage and easy to condensation, corrosion.



ABOUT BROADWELL AIR DOME



Combination Air Duct Technology

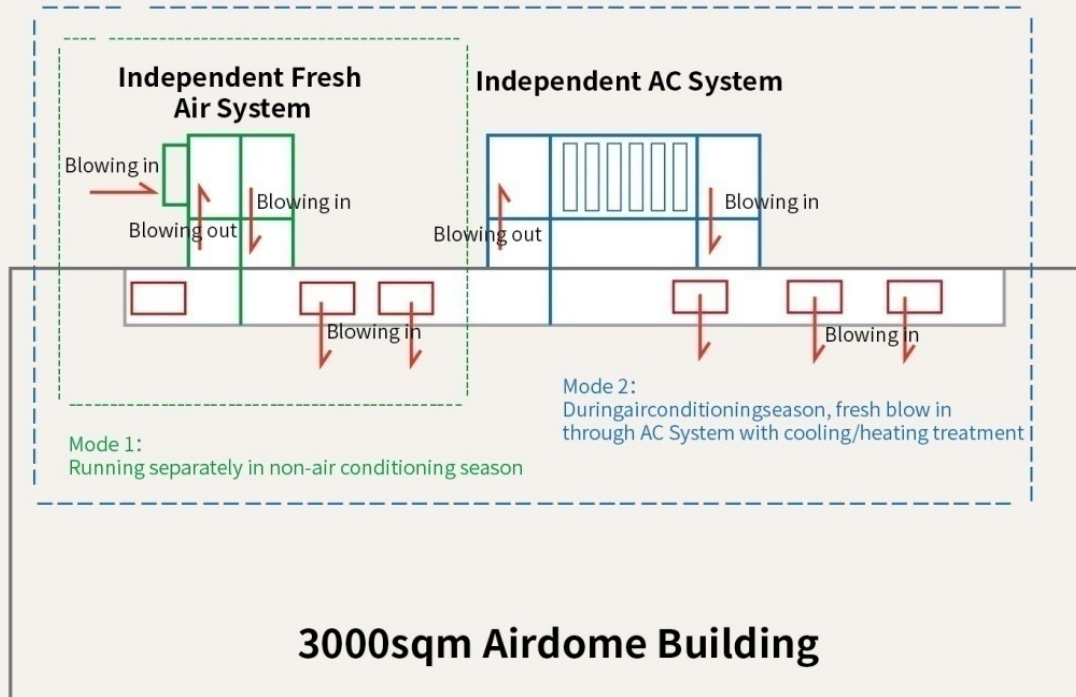
The independent inflated mechanical unit is set separately from HVAC machine. Due to the separation of inflated unit and HVAC, **in addition apply frequency conversion technique**, the operation cost of air dome is significantly reduced during off time.



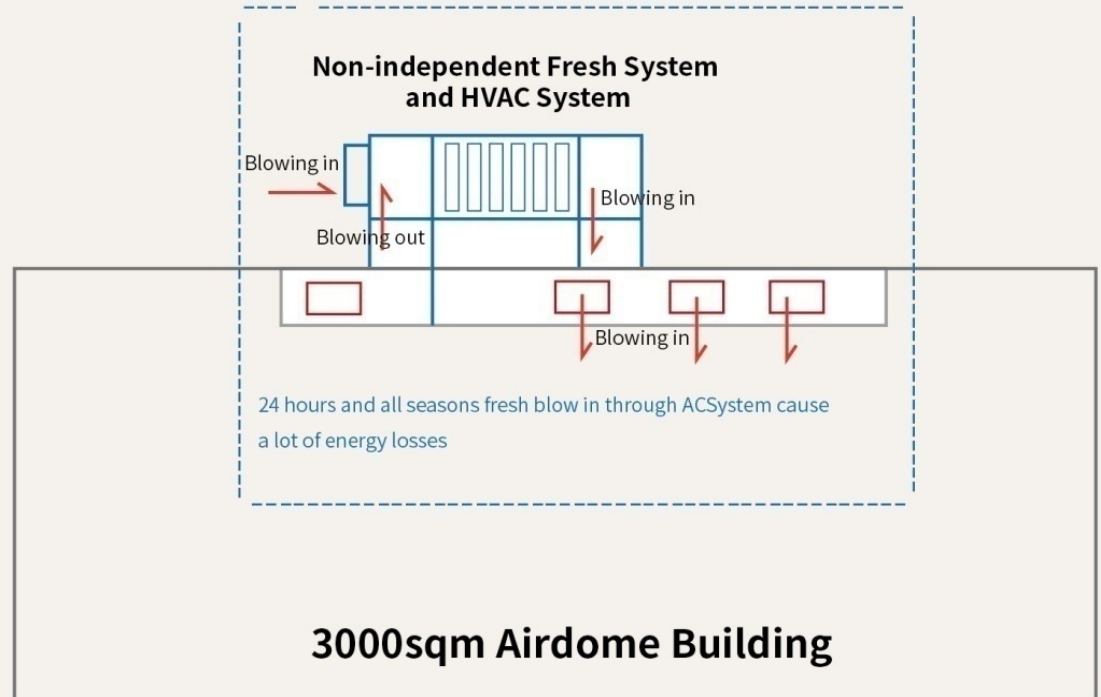
ABOUT BROADWELL AIR DOME



Combination Air Duct Technology



BROADWELL unique combination air duct technology



The other companies' air duct design

ABOUT BROADWELL AIR DOME



Broadwell Potable Inflation/Ventilation Solution



Portable Inflation Unit



Portable Vent

This is our latest technology, which use portable EC inflation unit. This kind of inflation unit can be easily installed and dismantle.

Each dome with several inflation unit, and each unit **with independent control module and also work independently. With this design, even part of the inflation units group are out of work, the rest inflation units can still support the dome which make the dome be safe.**

With the vent, the whole system can control the air fresh rate of the clear dome.

ABOUT BROADWELL AIR DOME



Unique Remote Monitoring System

Remote monitoring interface on mobile device - APP



BROADWELL Air dome building adopt PLC intelligent control system, through RS485 interface connect PC or through cell phone APP, to realize the remotely live monitor and **including: mechanical system operation status, lighting, temperature, humidity, wind speed, snow pressure, air quality, etc.** Also, the data record function allow convenient query in long period. Lastly, control system with alarm system can remotely deal with sudden weather and unexpected events.

ABOUT BROADWELL AIR DOME



Applications



Our air dome system not only is widely applied in sports and entertainment, but also provides the best structure type for industry and warehouse which require large span and large space, also provides safety, energy-saving and economic solution for environmental or logistics industry, military, etc.



Swimming



Ice Hockey



Badminton



Tennis



Children's Park



Football



Basketball



Waterpark

ABOUT BROADWELL AIR DOME



Applications



■ 3D Cinema/Activity Center



■ Exhibition



■ Conference Hall



■ Workshop



■ Coal Bunker



■ Granary



■ Museum



■ Sewage Treatment Plant



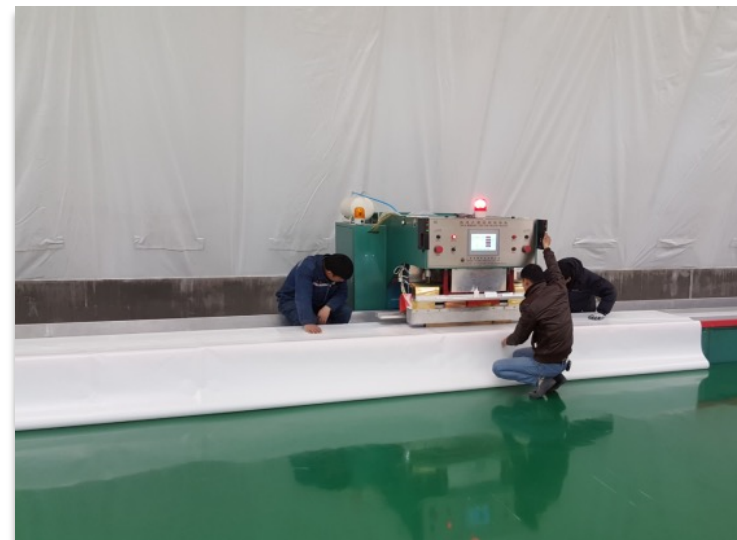
CHAPTER 2 ABOUT BROADWELL

ABOUT BROADWELL



Broadwell (Shenzhen) Technology Co., Ltd. (here as "Broadwell"), is the worldwide leader of air supported structure (here as "air dome") solution supplier and founded in 2003, focus on air dome design, manufacturing, R&D, with about 120 employees of which nearly 1/3 are R&D experts. Broadwell head office is located in the High-tech Park of Shenzhen, the R&D center is located in Xi'an, Shanxi Province. Manufacturing center is located in Yancheng, Jiangsu Province.

Broadwell is the only one in the world of all the air dome supplier has air dome R&D center and the world's largest manufacturing center. Our business covers China, Russia, North America, the Middle East, Japan, South Korea, Southeast Asia, etc. Our air domes are applied in sports, entertainment, industry, logistics, environmental protection, tourism, archaeology, agriculture, business, biochemistry, petrochemical, military, etc.



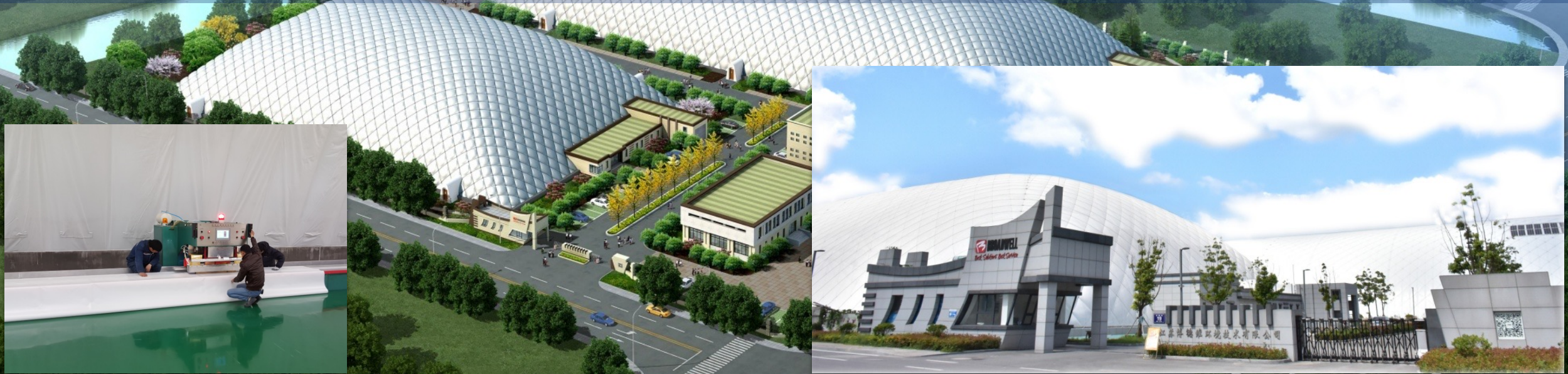
ABOUT BROADWELL



World's Largest Manufacturing Center

Broadwell manufacturing center is completed in 2016, with total area of 33,100 sq.m, consists of office and dust-free workshop, the two air dome dust-free workshops is up to 100,000-grade cleanliness. Our manufacturing center is located in Yancheng, China, our annual capacity is up to 5 million sq.m, equipped with State of the Art Machinery.

Most part of air dome components are finished in the factory then ship to the site. Which can save more than 30% of resource to build a stadium compare with traditional structures, during the installation, almost no construction waste in the site installation. And the site installation work is just 10-30 days.

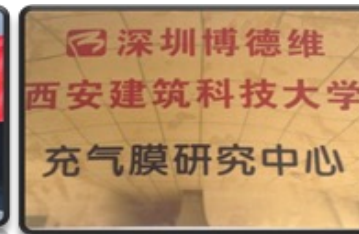
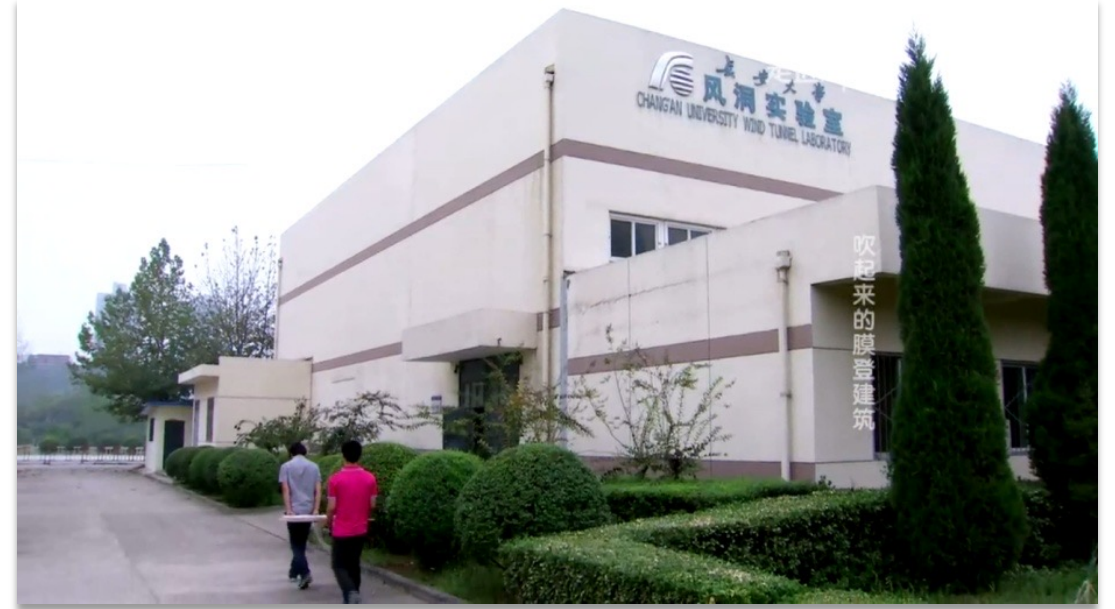
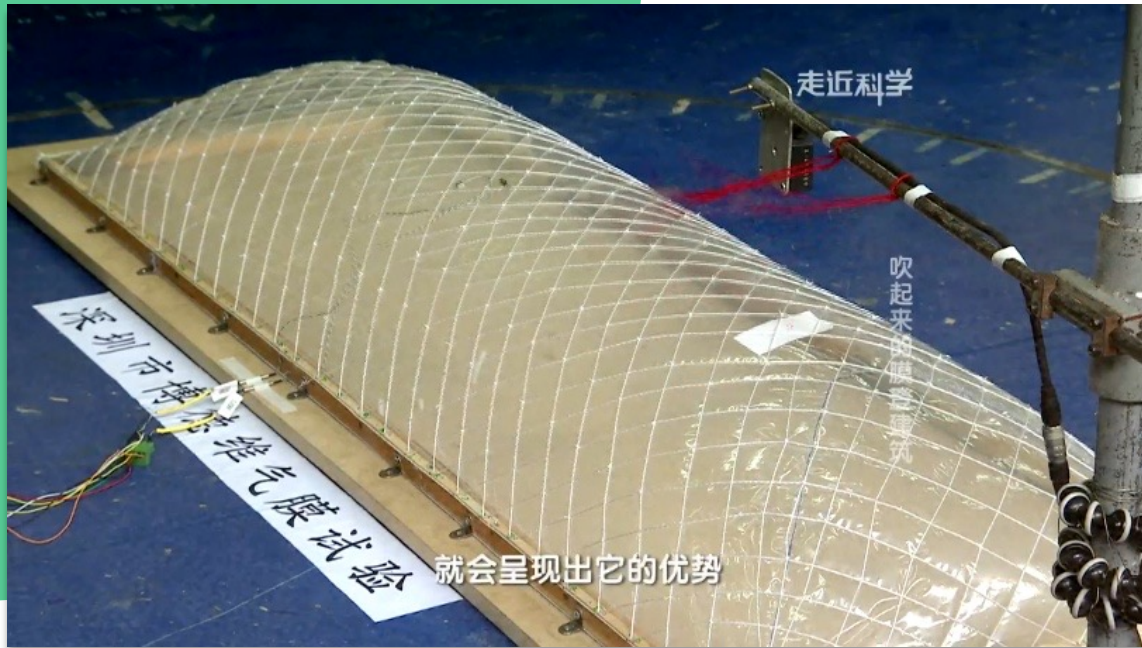


ABOUT BROADWELL



R&D Center

Broadwell has close partnership with many top architecture universities in China, and established a nearly 30 people R&D team in Xi'an. Through independent R&D, Broadwell become the industry leader, owns over 135 patents, and 80% of the new inventions in air dome industry belong to Broadwell.



ABOUT BROADWELL



R&D Work

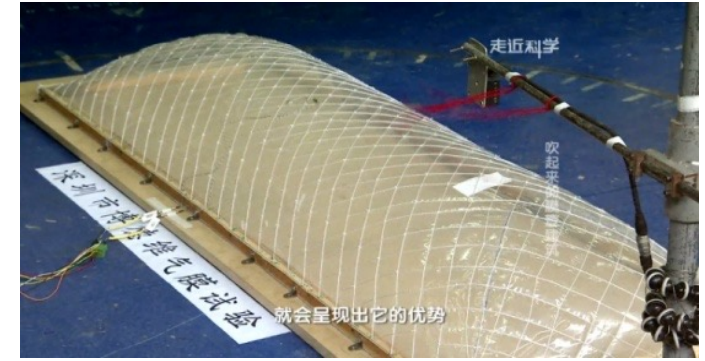
With 18 years' concentration and accumulation, support the technology and application innovation.



Simulation experiment of snow load



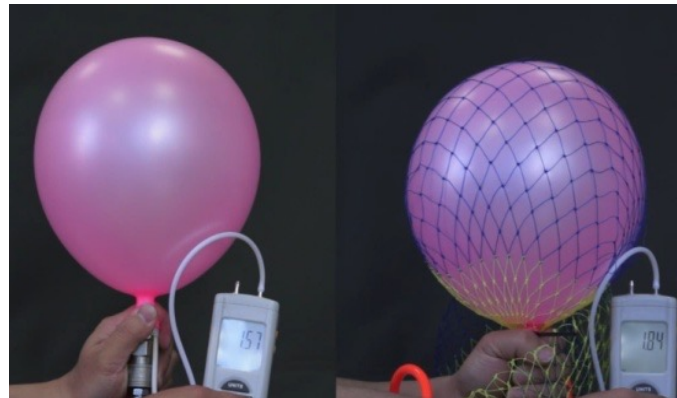
Free-fall hard objects impact experiment



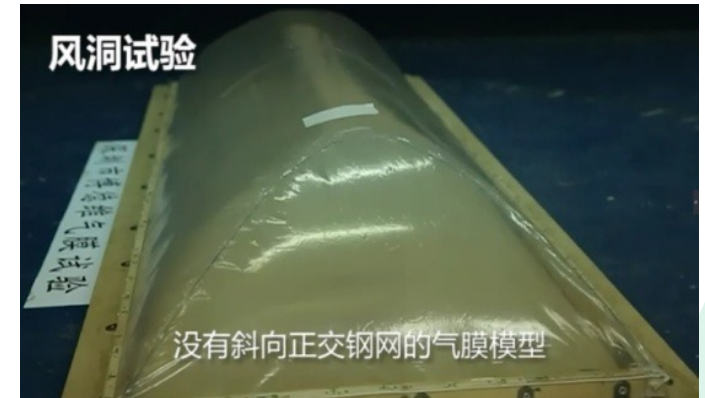
Wind load experiment



PM2.5 data monitoring experiment



Broadwell Cable Bias Harness Net System Experiment



Wind tunnel experiment

An aerial photograph of a city at sunrise or sunset, featuring several large, green, dome-shaped structures in the foreground. The background shows a cityscape with buildings and a tall chimney. The image is overlaid with a semi-transparent green circle on the left and a white circle on the bottom right.

CHAPTER 3 BROADWELL AIR DOME APPLICATIONS

Broadwell AIR DOME APPLICATIONS



Football



Water Park



Basketball

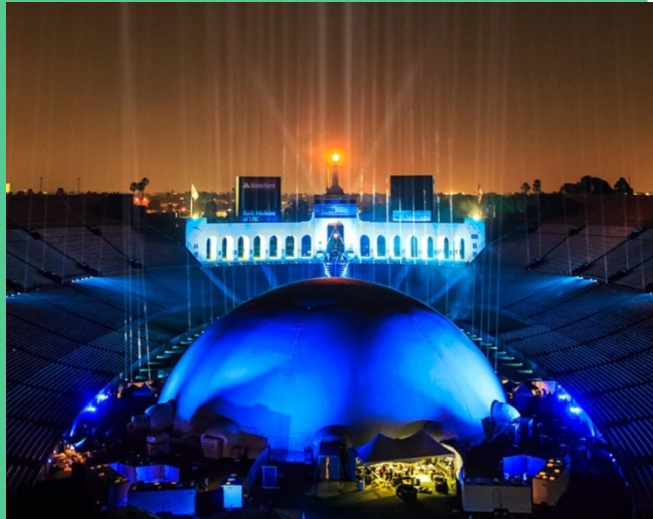
- Flexible types to meet with requirements of construction site and structure need
- The top class air purification system in the world, which can filter PM2.5 effectively.
- Fabric behaves good self-clean capability, weather resistance, long life, anti corrosion and fire proof.

Tennis
Swimming
Basketball
Hockey

Badminton
Football
Ice

... ..

Broadwell AIR DOME APPLICATIONS



- 360 Immersive Projection Venue
- 4D Cinema
- Flow of Exhibition Center
- Exhibition Hall
- The Banquet Hall



- Variety color of membrane material, can free choice.
- Large space, easy to move and re-install.
- By using special projection membrane material, combined with modern technology, flexible display beautiful visual effects

Beijing ISB Sports Stadium



➤ L75.6m×W56.5m×H18.8m, 4271m² *2

International School of Beijing (ISB) is a long-established international school founded in the 1970s. It is a full-time, wholly foreign-owned institution that provides education for the children of foreigners working and living in Beijing.

The ISB Dome Tennis Stadium is the first sports venue in China that can filter pm2.5 and meet the healthy indoor environment of AQI (the highest standard of Ambient Air Quality Index).



The sports dome is equipped with Broadwell's patented "Blue Sky" purification system, which has a high-grade air filter unit that effectively filters out harmful particles such as pm2.5, providing an outdoor pm2.5 index of 700 indoors but only 20 clean air environment. The sports dome is the world's first indoor stadium with air purification.

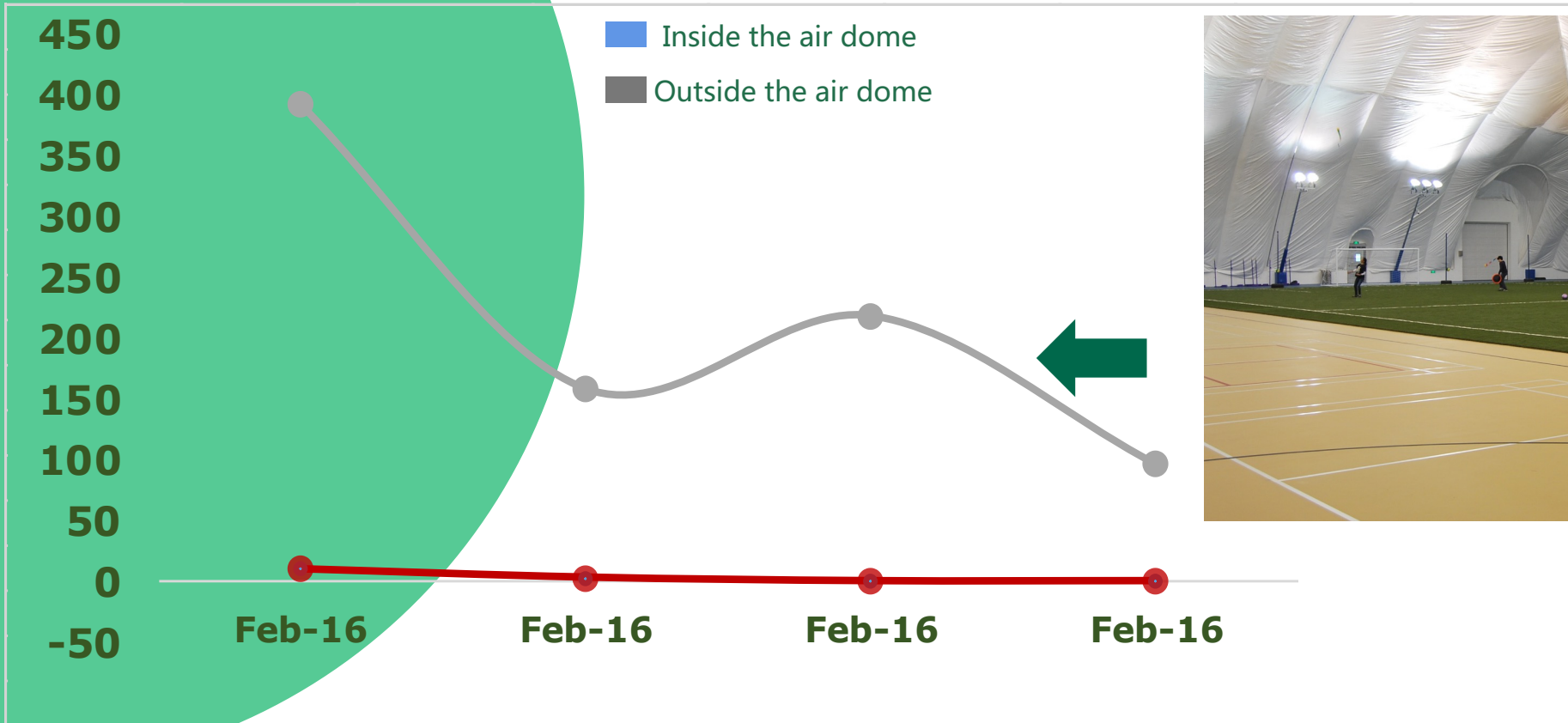


Broadwell Beijing ISB Sports Stadium



Air Purification

Sports Center of ISB The curve of pm2.5, February, 2013



ISB Sports Stadium is the first air dome which can filter pm2.5 in the world. By using our high class Air Filtration System, with tripartite filtration, which makes the indoor pm2.5 index only 20 when outside is more than 400.

NCWC Tennis Center Dome



➤ 43.28m*104.24m*15.8, 4511m²

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



Zibo City Center



➤ Dome #1: 6231sqm, Dome #2: 9960sqm, Dome #3: 9960sqm

The city center of Zibo city, located in Shandong Province, used for exhibition center and other city activities. It becomes the land mark of Zibo.



Nanjing OCT Happy Valley Multi-function Activity Dome



➤ **1400sqm**

A multifunction activity dome and land mark in the Nanjing OCT Happy Valley, with the unique design of double dome, which can be used for 3D/4D cinema, wedding venue, e-sports, business activities, etc.



2020 Miami Super Bowl Projection Dome



➤ 68.58×53.34×18.288m 3658 m²

This dome is temporary used in the Super Bowl season in Miami, US, 2020, which has been used for around 1 month. During the Super Bowl, it has become the most popular venue for people to go.



Projection Concert Dome LA



➤ 2800sqm

A temporary projection dome which used in LA, US in 2016 which hold a very large concert, around 6,000 people came to this part.



Volkswagen Product Launch Dome



➤ 1400m²

This dome is located in the downtown of Guangzhou, a temporary projection dome which used for about 1 month, just close to the landmark – Canton Tower, which used for the product launch of Volkswagen in 2019.



TCL TV Show Roof Dome



➤ 1000m²

This is a very special dome which on the roof of a building, in the TCL park in Shenzhen, China, used for the TV station to make TV show.

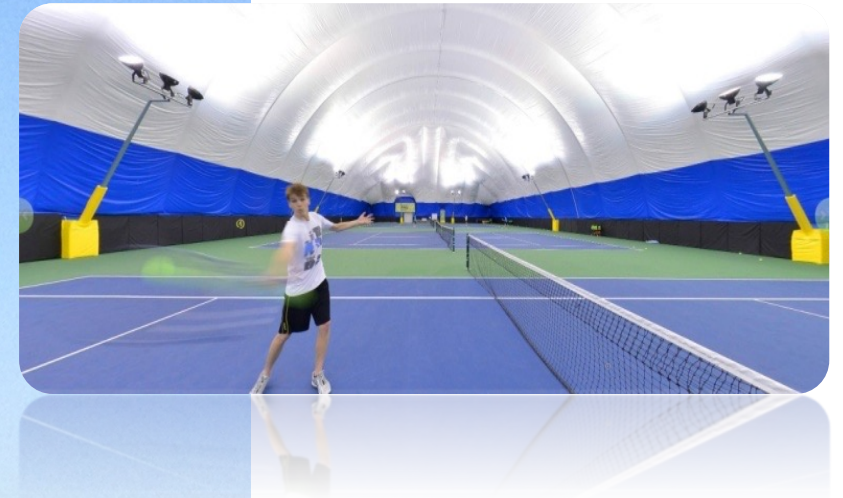


Beijing Jingxi International School Gymnasium, 2013



➤ L92.4m×W34.4m×H13.7m, 3179m²

This is another classic case in another international school in Beijing. Because of this dome is next to classroom building, so we designed this project with gray color to avoid light inflection.



Nanjing Normal University attached High School Stadium, 2018



➤ **L80×W52m×H18.5m, 4160m², L60m×W36m×H12.5m, 2160m²**

This project including two air domes, it is located in the most famous high school in Nanjing. It is the indoor sports stadium for all the students especially in the bad weather days. For the bigger dome of these two domes, also have fiber sound-proof board on the roof, so it can also be used as a conference hall.



TUS Ice and Snow Sports Center, 2017



➤ L61×W37×H12.8m 3079.5m², L45×W27m 2598.3m², L55m×W24m 1366.5 m²

There are three domes for this sports center, including one ice hockey dome, one snow park, and one reception hall. It is in the most south part of China and also a very strong Typhoon area. The temperature there is also very hot, only air dome can provide the perfect solution for ice hockey dome in such a hot region to control the power consumption.



Chen Lu International Ice Center Rink Hall, 2016



➤ L73m×W28m×H10m, 2044m²

This is a professional ice hockey dome which used for ice hockey and figure skating training. It also cooperated with China's national channel with some very important activities, like the promotion ceremony of 2020 Beijing Winter Olympic.



Gustavus Adolphus Swanson Tennis Center, Minnesota, USA, 2019



➤ 175' x 280' x 60' - 49,200 sq ft

This Tennis Dome is located in Gustavus Adolphus College, St. Peter, Minnesota. Which is a very heavy snow area in US. From design, manufacture, shipment to construction completion, it only took 40 days.



Shanghai Communication University Basketball Stadium



➤ L142m×W38m×H15m 5396m²

This dome is the basketball stadium which we built for Shanghai Communication University, one of the best university in China, which located in Shanghai. This dome has very dedicated monitoring system, which can monitor not just temperature, humidity, air pressure, air quality as we usually do, but also many other customized functions they can monitor in real time.



Shanghai Tongji University 2018 WIEE Conference Hall, 2018



➤ L80m×W60m×20m, 4800 m²

This is the main conference hall for the 2018 WIEE (World Innovation & Entrepreneurship Expo), many important activities been held in the dome. And it is located in Tongji University, the most famous university in China.



Henan Medical Technician College Stadium, 2015



➤ L102m×W68m×H23m, 6764m²

The Henan Medical Technician School is China's first air dome which moves the runway into the room. There is a 200-meter standard runway around the hall. The remaining venues are equipped with up to 50 standard badminton courts. These courts are flexibly converted into tennis courts, basketball courts and even football fields.

The air dome is equipped with Broadwell's "blue sky" air purification system, which can strictly filter the air entering the room to ensure that the air is fresh and clean, creating an indoor air sports environment with excellent air quality.



Suzhou International School Sports Stadium, Suzhou, China, 2017



➤ L65m×W35m×H12.5m, 2275m²

This dome is not only a sports stadium, but also the activity venue in the Suzhou International School, very close to Shanghai.



Pohang City Disaster Evacuation Center, 2019



➤ L50m×W30m×H12 m, 1500m²

This is a government evacuation center in Pohang, Korea. Compare 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.

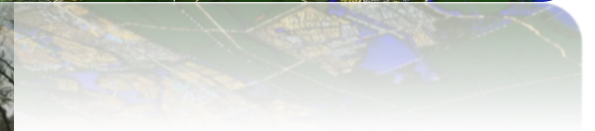
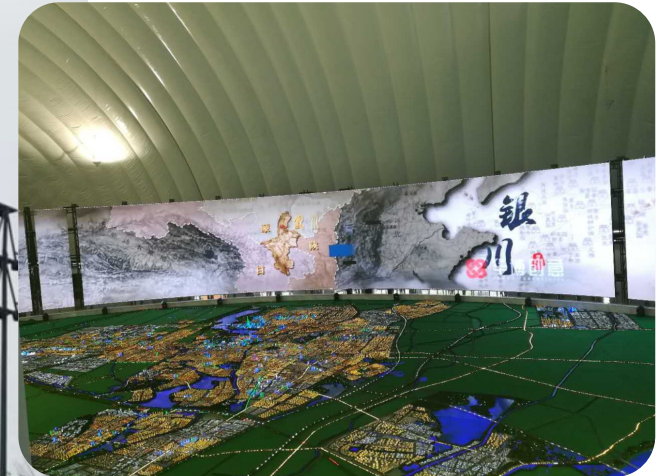


Yinchuan Municipal Planning Exhibition Hall



➤ 70m*48.8m*16.5m, 3416m²

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.



Tianjin Xiangluowan Sports Center, 2015



➤ **70m*48.8m*16.5m, 3416m²**

Tianjin Xiangluowan Sports Center Badminton Dome and Tennis Dome are the first indoor sports domes in Tianjin, also the first indoor sports halls in Tianjin with air purification function. These two domes house 16 badminton and 2 tennis courts. They can simultaneously accommodate about 100 players.

The chamber is constant temperature and humidity, comfortable and clean, and the energy consumption is extremely low, which is about 1/6 of the energy consumption of traditional indoor venues. It provides a better place for sports in the smog and winter cold seasons.



Canton Zhaoqing PaoPao Sport Center, 2016



➤ L52×21m×H9m, 1092m², L75m×W21m×H9m, 1575m²

This project consists two air domes, one is tennis dome, one is swimming pool dome. This project is in a very famous tourist area, so we designed this project with green color, so it can match with the environment around.



Zhengdong Dragon Lake National Fitness Center, 2018



➤ (L100m X W40m XH13m) X 3, 12000m²

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.



Yangzhou Conference Hall, 2019



➤ H12.5m * L70m * W36m, 2529 m²

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 this international conference. And the unique design of this project is like the ancient Chinese currency, represents the meaning of wealth.



Henan Dengfeng JUNMEI Sports Stadium, 2018



➤ L90 m×W70.5 m×H23 m, 4970m²

This sports stadium is with oval shape and it is a professional competition stadium for the International Kong Fu Competition. In the center area, it is for Athletes, Coaches, Journalists and other workers. Audience will be in the viewing area on the second area around.

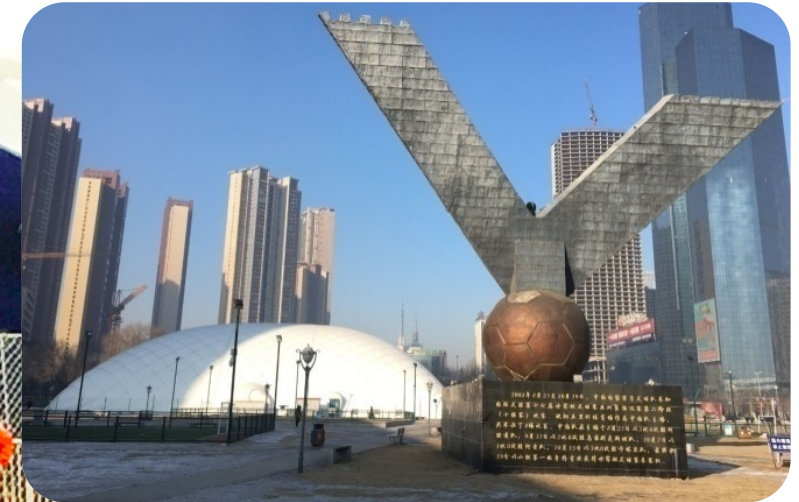


Shenyang Children's Football Park, 2016



➤ L57.1m×W44.6m×H15m, 2546.66 m²

This is a football air dome located in Shenyang, Liaoning Province, the north-east part of China, this dome is used for children football training. Which provide the children a place to play football even in the cold winter and air pollution days.



Xinjiang Shenmuyuan Water Park, 2016



➤ R110m, H14 m, 9500 m²

The Xinjiang Shenmu water park is the largest indoor water park dome in the world. It is located in Urumqi, which is the furthest city from the oceans in the world. In this city, the seasonal temperature difference can reach nearly 50°C (-18°C—30°C) , and the regional yearly average wind speed can reach by 6.2m per second.

There are about 50 snowy days in each year. As a result, the snow depth is more than 40 cm in winter. Consequently, the safety requirement of air dome technology is very high for the construction of long-span buildings in this area.

However, the excellent performance of Broadwell Air Dome technology in wind resistance and snow resistance has been proved after its more than two years' operation.



Jinan Olympic Sports Center Tennis Hall, 2011



➤ L62.1m×W41.5m×H16m, 2577.15m²

The Jinan Olympic Sports Center has the reputation of "the most beautiful sports stadium in China". The center has a comprehensive gymnasium, swimming pool and tennis hall. It is the largest group of public sports facilities in Jinan.

The venue is equipped with Broadwell's unique active fresh air circulation system, which is more than 50% more than the original venue, providing a more comfortable sports environment for athletes and customers. Which also save more than 70% of energy after reconstruction than the old structure.



Children's Park, Balikesir & Antalya, Turkey, 2015



➤ L87m×W52m×H17 m, 4524m², L80m×W70m×H20m, 5600m²

The Children's Park Dome Project is the first Chinese-made dome in Turkey. It is a livelihood project invested by the local government. It provides a full range of facilities for local children and adolescents.



CHAPTER 4

FAST SETUP CLEAR

DOME SOLUTION

A New Generation of Air Dome Solution!

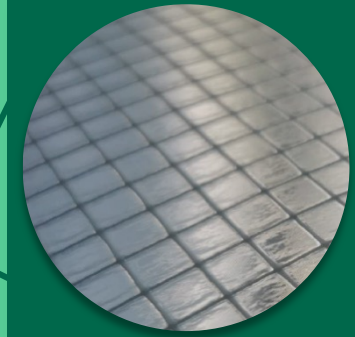
What is the Broadwell Clear Dome?



Broadwell Clear Dome is the latest solution based on the unique ultra-transparent fabric – ClearStrong®, the whole system is including ClearStrong® membrane envelope, cable harness system, inflation system (with EC fan and vent), door system, anchorage system and necessary accessories. Compared with the traditional air dome, the cost can be reduced around 50%, the construction period can reduce 90%. It is a new solution of sports site cover such as basketball, tennis, football, swimming pool, etc.



Broadwell The main features of Broadwell Clear Dome



Applicable Temperature: -20 to 45 °C



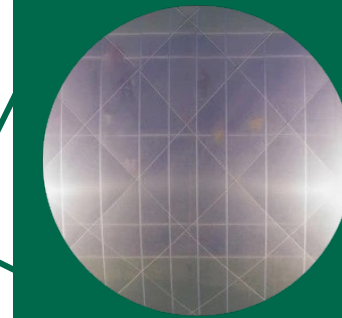
Withstand wind load of maximum 50m/s



Withstand wind load of maximum 1.0kN/m²

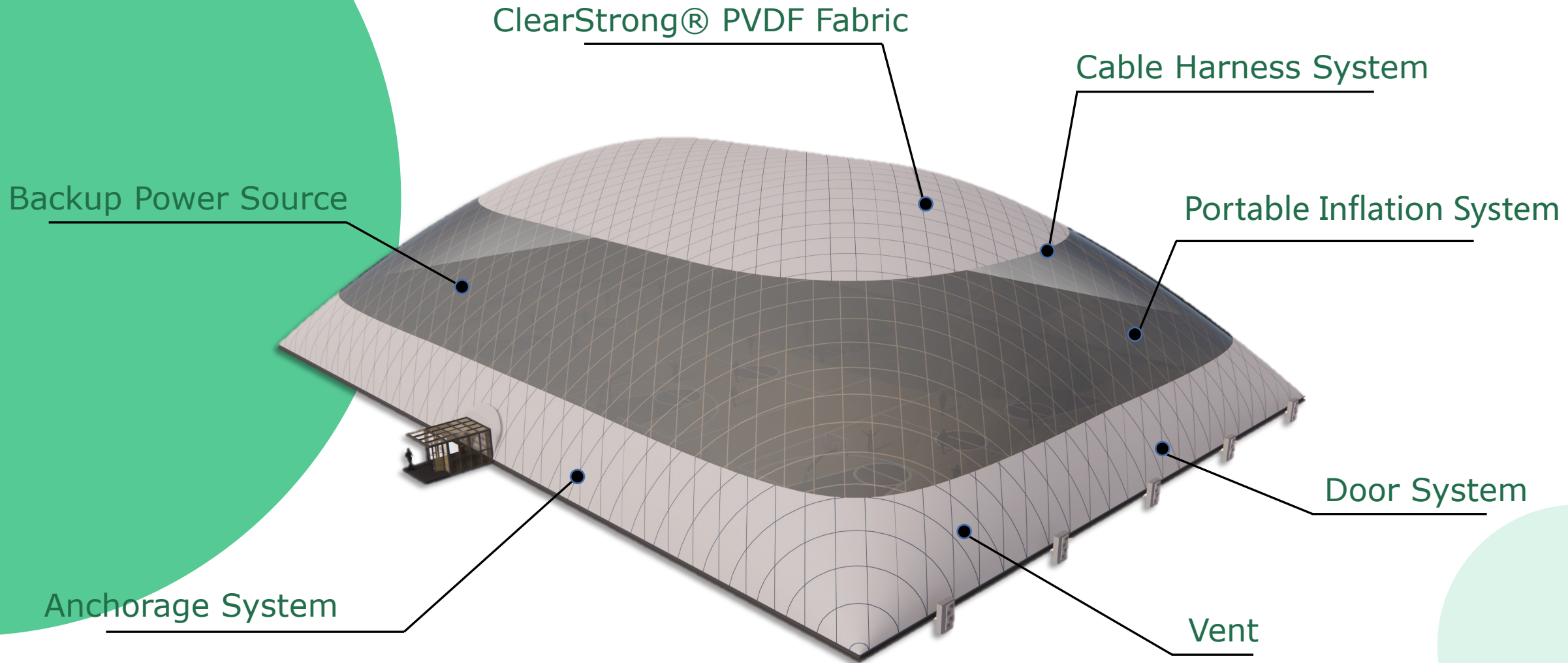


The maximum width can be reached to 100m



Without heating, temperature inside clear dome can be 5-10°C higher than outside in the daytime of winter.

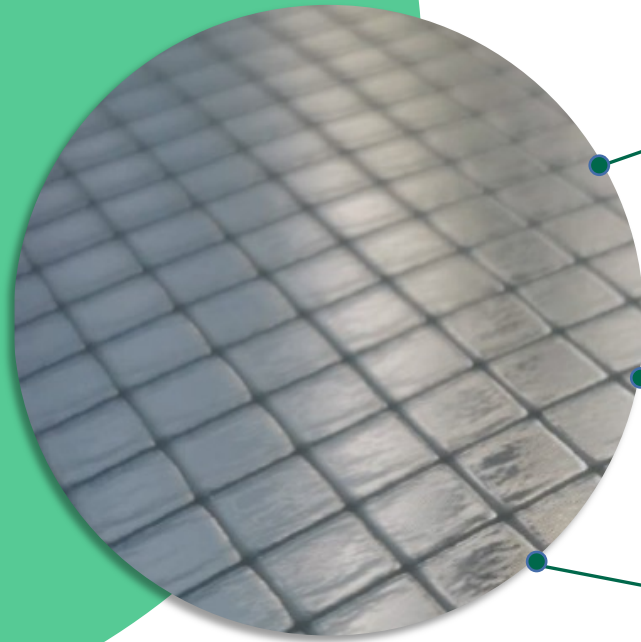
Broadwell Clear Dome System



Broadwell ClearStrong® PVDF Fabric



ClearStrong® PVDF Fabric is the latest technology of Broadwell with excellent performance.



93% Ultra-high light transmittance rate – make people who have sports in the dome just like outdoor.

Can block 95% ultraviolet light – protect people from the hurt of UV during sports.

20 years warranty.

Broadwell Anchorage System (for Temporary Dome)



Screw Pile



Earth Anchor

For the clear dome, we use different anchorage and foundation system to make the whole system to be installed and dismantle easily.

Like screw pile (as the images shows), earth anchor, expansion anchor bolt, concrete block, etc. It is depends on the factor of the size of air dome, wind & snow load of the site, the ground condition.

Taiyuan Junchi Tennis Training Dome



➤ 655m²

A seasonal clear dome used as tennis training court in winter, which in the daytime, the inner temperature is 5-10°C higher than outside without heating system.



Zhangzhou Peach Blossom Island Clear Restaurant Dome

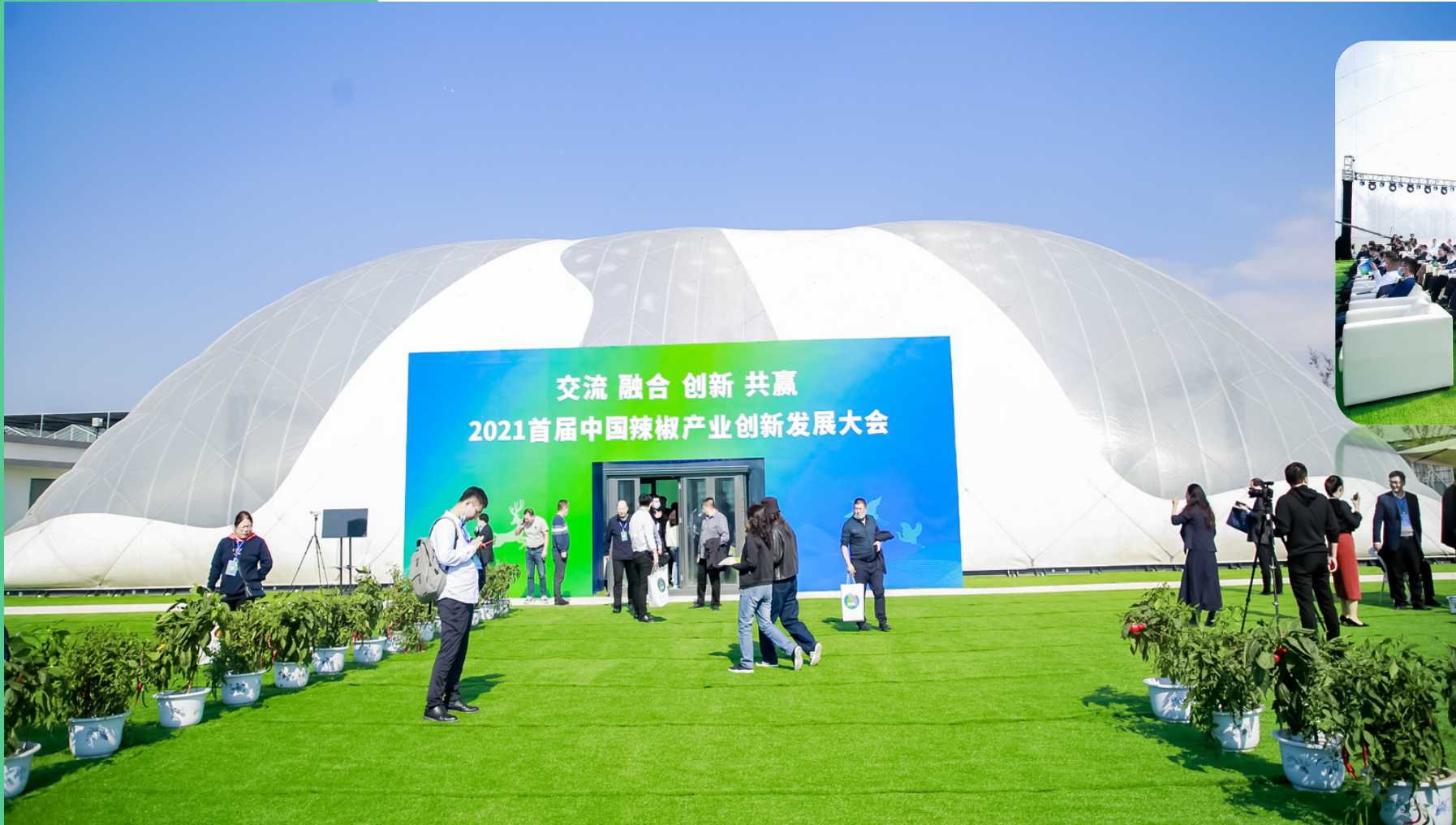


➤ 1568m²

A fancy restaurant located in a tourist attraction in Zhangzhou, Fujian, China, the north part.



Clear Basketball Dome in Broadwell Manufacturing Center



THANK YOU



龙湖全民健身中心
THE DRAGON LAKE SPORTS FOR ALL CENTRE