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BUILT FOR SUCCESS

State-of-the-art venues bring the wow factor

SKETCH BY LI XIAOTIAN / CHINA DAILY

RARING FOR THE GAMES TO BEGIN

Ma Long, *Chinese world and Olympic table tennis champion*

"I always think of table tennis as a bridge to connect us. At the Asian Games, the sport is in the spotlight and the competition is always fierce. More importantly, there is communication. Smaller associations in Asia probably have limited opportunities to play at high-level international events. But at the Asian Games, they have a lot more chances to shine."

Gong Lijiao, *Chinese world and Olympic shot put champion*

"I hope I can win gold again in Hangzhou, which will be my fourth time competing at the Asian Games. This time it's special as it's a home event. I also want to welcome all the Asian athletes who will compete in Hangzhou. I hope all of them can produce their best at the games."

Mohammad Idris Jafari,
Afghan boxer

"Our only wish is to bring the gold medal to Afghanistan. We can bring smiles to the faces of our countrymen through sports. I am keen to experience the Chinese culture and visit the historical and recreational landmarks of China during my trip there so it will be a cultural trip as well."

Vinod Kumar Tiwari, *acting director general of the Olympic Council of Asia*

"It really is a pleasure to see that, after three years of the pandemic, the interest that these games have generated is huge because this will be the first major multisport international event which will be held without any restrictions. So we're very happy to be here in Hangzhou, and hopefully with all the support, we will have the best Asian Games in history."

Zhou Jian, *director of the Olympic Council of Asia's Media and Broadcast Department*

"The preparation work has gone perfectly and the organizers have put in a huge amount of effort. We can see this in the competition schedule, the preparation of venues, as well as the set-up and adjustment of all the hardware and software facilities. I prefer to save my emotions for the opening day. But the ceremony must be truly wonderful because many of my colleagues who saw rehearsals said they were so stunned and they even shed tears."

Zhu Yaming, *Tokyo Olympics triple jump silver medalist from China*

"My target is to see the national flag raised in track and field. It's pressure as well as motivation to compete on home soil. I will try my best to surpass myself and achieve the best result."

Yondonperenlei Baskhuu,
two-time world judo bronze medalist from Mongolia

"I am participating in the Asian Games for the first time. I will compete in the 66-kilogram category. My preparations for the games have gone very well, and I want to be a champion. I have great expectations that this event will be beautiful."

Ng Ser Miang, *vice-president of the International Olympic Committee*

"The Asian Games will provide a great opportunity, in this beautiful place of Hangzhou, for these athletes to share experiences, culture and diversity, heart to heart and under the same roof."

Chandai Phiathep, *coach of the Laos national sepak takraw team*

"I think the Hangzhou Asian Games can unite Asia and play a positive role. The Asian Games hosted by China will promote unity and friendship in Asia."

Chen Yufei, *a Hangzhou native, reigning Olympic women's singles badminton champion*

"Asian countries and regions boast elite-level badminton players. The sport's competitiveness at the Asian Games is pretty much the same as the Olympics. It will be a big challenge for me and I will try to reward the local people's support with my best performance."

Raja Sapta Oktohari, *chairman of Indonesia's Olympic Committee*

"We want to show the Indonesians the proper way of building infrastructure for sports, and I believe China sets a very good example for that. So hopefully, after returning from the Asian Games in Hangzhou, we can develop better infrastructure for sports. We are looking forward to a great event in Hangzhou."

Pierre Jalkh, *president of the Lebanese Olympic Committee*

"I believe the government of China is keen to offer something unique which shows the capabilities they have. I expect everything to be excellent in Hangzhou. We can see this from the Winter Games that took place in 2022 when the organization was superb, and I believe this will be reflected in the upcoming games."

CHINA DAILY

Host with the most ready to shine

Local legend Li Lingwei says Asiad is perfect platform to showcase Zhejiang's diverse delights

By **SUN XIAOCHEN** and **MA ZHENHUAN** in Hangzhou

Born and raised in Zhejiang, Chinese badminton legend and veteran sports administrator Li Lingwei says her home province is ready to showcase its many delights to the world as host of the 19th Asian Games.

With two days to go before the Asian Games flame lights up China for the third time in history, Li took a stroll down memory lane as she highlighted the sporting gala's positive influence on the nation over the past three decades.

"After so long, I can still hear, feel and visualize the passion of the crowd filling the streets to watch the relay and how excited each face looked," Li, a retired badminton world champion, recalled of running a leg of the 1990 Beijing Asian Games torch relay at Hangzhou's Wulin Square.

"The Chinese people's enthusiasm for sports and their hospitality made a strong first impression on the world stage 33 years ago. The expectation has grown higher with Hangzhou more than ready to host Asia's very best at a well-organized sporting spectacle," added Li, an International Olympic Committee member who also serves as a deputy secretary-general of the Hangzhou Asian Games Organizing Committee.

Adhering to the highest standards in sustainability, hospitality and technology, Hangzhou, supported by five co-host cities, is primed to deliver an even bigger and better Asiad, following the 1990 Beijing and 2010 Guangzhou editions. Organizers are confident that the games will maintain China's impeccable track record of delivering its bid promises when staging major global events.

The Hangzhou Asiad, which includes both Olympic and non-Olympic sports, will see about 12,500 athletes from all 45 national and regional Olympic committees in Asia compete in a record 481 medal events through Oct 8, making it the biggest ever edition of the games.

Esports and breaking, a street dancing discipline, will make their debuts as official medal events on the Asian Games program in Hangzhou, where Olympic qualification quotas for Paris 2024 will be up for grabs in nine sports.

"Anticipation levels are high and I am sure Hangzhou will be worth the wait. Records will fall and new milestones will be accomplished in Hangzhou," said Li, a 13-time badminton world champion who is also an executive council member of the Association of National Olympic Committees.

Yasuhiro Inomata, deputy secretary-general of the 2026 Asian Games organizing committee in Japan, expressed high hopes for Hangzhou.

"Every venue is fantastic, and the staff, as well as the volunteers, are enthusiastic. Especially when riding the subway, the synchronized promotional videos playing outside the windows are awe-inspiring," said Inomata, who visited Hangzhou during a venue tour in April.

Raja Sapta Oktohari, chairman of the Indonesian Olympic Committee, is treating the Hangzhou games as an invaluable learning experience in sports infrastructure planning and construction.

"We want to show the Indonesians the proper way of building infrastructure for sports, and I believe China sets a very good example for that ... We are looking forward to a great spectacle hosted by Hangzhou," said Oktohari.

With China earning a reputation for hosting events with a wow factor in recent decades, organizers nowadays are more focused on sustainability and legacy, especially integrating infrastructure into urban rejuvenation projects.

Hangzhou's emphasis on reusing existing facilities, opening venues for public use in the pre-games stage and upgrading city infrastructure in line with preparations for the Asiad have set an example for future hosts, Li reckoned.

"There has been a growing consensus among international sports governing bodies in recent years that Chinese organizers always deliver on their guarantees," said Li, who was also heavily involved in preparations for both the Beijing 2008 Summer and 2022 Winter Olympics.

"The Chinese government's commitment to deliver, the organizational expertise of experienced staff and the overwhelming public support have made China a safe and reliable destination for international sports events," she said.

Li also encouraged more athletes from China to embrace administrative and managerial roles after retirement, especially with international governing bodies.

"Chinese athletes these days are more confident than our generation and they've had greater exposure to foreign languages, different cultures and the rules and regulations of international organizations.

"I hope that more athletes in the twilight of their athletic careers will seriously consider getting involved in international sports administration.

"We've produced enough world-class athletes, we've hosted major sports events of all kinds, and it's time to further enhance China's presence in the global sports community more comprehensively," Li said.

As a native of Zhejiang, Li said she urged all Asian Games participants to experience the provincial capital's rich array of historical and cultural attractions, as well as sample the city's authentic daily life.

"We don't need to sell them all the scenic spots, or must-visit attractions, or tell them how pleasant Hangzhou is. The city's charm speaks for itself," she said. "As long as they learn and experience with their own eyes and minds, word of mouth will spread the message to the rest of the world."

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International Olympic Committee member Li Lingwei says the Asian Games will present Zhejiang's open and dynamic image to the world. XINHUA

12,417
athletes
will compete at the 19th Asian Games

481
medal events
across 40 sports will be contested in Hangzhou

over 3
million tickets
are on sale for the competitions at the Hangzhou Asian Games

Hangzhou Olympic Sports Centre Stadium
Seating: 80,800
Floor space: 216,000 square meters
Events: Opening and closing ceremonies, athletics
Highlights: Its shape is inspired by ancient silk textures and weaving systems; its architectural form vividly reflects the surging waves of the Qiantang River and its roof consists of 28 petal-shaped structures and 27 smaller ones. In 2020, it won the Luban Award, one of the most prestigious construction awards in China.

Hangzhou Olympic Sports Centre Tennis Centre
Seating: 10,000
Floor space: 523,000 square meters
Events: Tennis, soft tennis
Highlights: Nicknamed "the Small Lotus", the whole building consists of 8 big petal-shaped elements and 24 small ones, with the innovative design of its roof using the principle of "open-close rotation". Each petal weighs 160 tons with the total weight equal to that of approximately 1,000 sedan cars. It takes about 20 minutes to open and close the roof. In 2018, the venue hosted the World Short-Course Swimming Championships before it was transformed into a tennis venue in 2019.

Hangzhou Olympic Sports Centre Gymnasium
Seating: 18,000
Floor space: 74,470 square meters
Events: Basketball
Highlights: Together with the Hangzhou Olympic Sports Centre Aquatic Sports Arena, it is designed to function as a two-in-one arena and features a unique streamlined shape with double layer roofs completely covered by silver metal panels and an architectural form resembling two spreading wings.

Smart venues get the green light

High-tech, environmentally conscious stadia and facilities have been put through their paces ahead of the games to ensure full event readiness, **Ma Zhenhuan** reports

On the afternoon of Aug 30, a seamless series of rehearsals for the table tennis competitions took place at Gongshu Canal Sports Park Gymnasium in Gongshu district in Hangzhou, capital of Zhejiang province.

Everything, from the athletes' arrival and the matches themselves, to the awards ceremony and post-match press conference, were organized, practiced and timed, with it all going smoothly and to plan.

"During the Asian Games, the Gongshu Canal Sports Park Gymnasium will host the table tennis and breaking competitions. The venue operation team is continually optimizing every aspect to ensure that the venue operation meets the requirements of the Asian Games," said Wang Xiaochen, a staff member of the gymnasium.

The Asian Games, the continent's largest sports event, is making a return to China for the first time in 13 years, since it was held in Guangzhou in 2010, and more than three decades after Beijing first hosted the competition in 1990.

After eight years' preparation, all the 56 competition venues, including 12 new projects, have been completed and Hangzhou is fully ready to welcome athletes, officials and participants from all across Asia for the sporting extravaganza, which starts on Sept 23 and will run through Oct 8.

"Hangzhou is all set," said Chen Weiqiang, executive secretary-general of the Hangzhou Asian Games Organizing Committee, also the city's vice-mayor. "Our volunteers are ready, and tickets for the event, which went on sale on July 8, are selling well both online and offline."

Work to prepare all 56 competition venues and 31 training venues, whether they're newly built or renovated, is complete. The Asian Games Village, five Asian Games sub-villages and reception hotels are ready to provide comfortable accommodation for athletes, technical staff and media during the Games, according to the committee.

With the focus on smart, green and sustainable facilities, all competition venues for the 19th Asian Games in Zhejiang province have been built, or renovated, to meet the requirements of both the games and, afterward, the daily recreational and sporting needs of local residents.

Renowned as a hub for developing artificial intelligence, cloud computing and big-data technologies, the main host city Hangzhou is embracing the Asiad as a high-profile showcase of the latest high-tech solutions for hosting international events.

> "Hangzhou is all set. Our volunteers are ready, and tickets for the event, which went on sale on July 8, are selling well both online and offline."
>
> **Chen Weiqiang,** executive secretary-general of the Hangzhou Asian Games Organizing Committee

The Tonglu Equestrian Centre, for example, has been equipped with a "digital twin" system to stage the competitions.

"It is a virtual replica of the equestrian center," said Zou Jianhua, operations director of the center. "The system helps monitor the real-time conditions of the center from a dozen aspects, including security, fire safety, energy consumption and visitor footfall. It will also automatically activate an alert system in the case of emergencies."

The 24-hour water circulation system installed at the Hangzhou Olympic Sports Centre Aquatic Sports Arena ensures the high quality of the pool water, as well as promoting energy conservation.

AI machines that can translate 83 languages are provided for athletes from around the world at the Xiaoshan Linpu Gymnasium, the venue for the judo, kurash, and jiujitsu events.

The organizing committee has also cooperated with e-commerce giant Alibaba to launch a digital service platform — Smart Hangzhou 2022 — on Alipay to help facilitate the stay of all participants and visitors to Hangzhou by offering one-stop services. Using the AR map on the platform, spectators can easily find their seats at the venues.

In co-host city Ningbo, nestled within the scenic Songlan Mountain Resort in Xiangshan county, the Asian Games Sailing Centre boasts a tranquil bay encompassed by two protective breakwaters.

Sailboats can be seen gliding out of the bay and making their way to the open sea after circumnavigating a lighthouse at the edge of the bay.

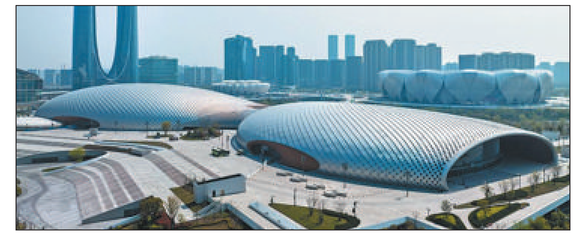
As the only competition venue involving marine construction for the Hangzhou Asian Games, the center kicked off its first event on Wednesday.

Being a comprehensive sports facility specially designed for sailing competitions, the center also offers training courses for large and small sailboats, storage warehouses and award podiums.

It will host a variety of exciting sailing competitions during the games.

"On Aug 29 and 30, we held a warm-up for the national team, allowing us to test all the elements involved in the event, from people to materials, processes to procedures, to check the readiness for the actual competition," said Yang Sheng'ang, executive deputy commander of the sailing center.

With the complex maritime meteorological and hydrological conditions, a meteorological team in Ningbo has developed a customized and tailor-made plan for the Asian Games, which includes updated professional detection equipment and various technologies, such as wind profile radars, to provide precise monitoring, as well as accurate forecasts and services for the Xiangshan competition area.



Hangzhou Olympic Sports Centre Aquatic Sports Arena
Seating: 6,000
Floor space: 53,959 square meters
Events: Swimming, diving, artistic swimming
Highlights: Together with the Hangzhou Olympic Sports Centre Gymnasium, it is nicknamed the "Turning-into-Butterflies Dual Arena "based on an ancient Chinese folk story that portrays two lovers turning into butterflies in their afterlives.
The building, arguably the biggest of this kind in the world, also looks like two half cocoons. It used 25,000 tons of steel and 3D printing technology to produce each of the more than 20,000 steel components.

Huanglong Sports Centre Stadium
Seating: 51,971
Floor space: 103,338 square meters
Events: Football finals
Highlights: It is one of the venues for the 2007 FIFA Women's World Cup. After over two years of renovation starting in 2019, the stadium returned to operations with a brand-new look.

Huanglong Sports Centre Gymnasium
Seating: 8,000
Floor space: 24,489 square meters
Events: Gymnastics, rhythmic gymnastics, trampoline
Highlights: A center-hung 360-degree, 206-square-meter LED videoboard was added to the gymnasium during the renovation.

Huanglong Sports Centre Swimming & Diving Centre
Seating: 2,938
Floor space: 48,442 square meters
Events: Water polo
Highlights: The exterior design resembles the ripples after a diver breaks the water. It overlooks the beautiful West Lake. Combined with the stadium, as well as the gymnasium nearby, it is a popular destination for local sport lovers.

Planning for a shared future

With renewable energy sources, and steps in place for their post-games use, competition venues stand as testament to the organizers' environmental mission

Hangzhou Esports Centre
Seating: 4,380
Floor space: 79,790 square meters
Events: Esports
Highlights: Taking "stellar vortex" as its design concept, this venue is shaped like a starship. It is equipped with a center-hung LED video board that can be lifted to a maximum of 22 meters from the floor. The center-hung adds up to 202 square meters by integrating eight LEDs. These combined with another 184-meter-long, 96-centimeter-wide ring LED, fans in every seat are assured of being immersed in the action.

West Lake International Golf Course
Holes: 18
Land area: 700,000 square meters
Events: Golf
Highlights: Built in 1997, West Lake was one of the first golf courses to open in Zhejiang province. Designed by American golf master Jack Nicklaus, it measures 7,039 yards (6,436 meters). Golf was first incorporated into the Olympic Games in 1900 and the Asian Games in 1982. The Hangzhou games mark the first time professional golfers will compete in the Asiad. The course has been renovated to meet the standards required of the Asian Games. Four gold medals will be up for grabs here.

Zhejiang Normal University Xiaoshan Gymnasium
Seating: 2,302
Floor space: 16,393 square meters
Events: Handball
Highlights: Utilizing an advanced beam string structure, the venue's roof creates a fresh indoor visual effect. Outside, 308 water curtains, which resemble shutters, reduce indoor glare. The gymnasium is the only new venue of the Asian Games built in a university. After the handball competition, the floor can be renovated to stage other sports, including basketball, volleyball, badminton, table tennis and judo.

Qiantang Roller Sports Centre
Seating: 1,384
Floor space: 46,209 square meters
Events: Roller skating, skateboarding
Highlights: Looking down from the air, the whole venue looks like a shape of two "6" numerals connected with each other, or a spinning top.

Hangzhou Qi-Yuan (Zhili) Chess Hall
Floor space: 26,633 square meters
Events: Board games
Highlights: Floors 1 to 14 are designated as competition spaces. Once competitions end, this hall can be transformed into an integrated sports building capable of hosting events, catering and a wide variety of business activities.

Fuyang Yinhu Sports Centre
Seating: 10,531
Floor space: 82,360 square meters
Events: Shooting, archery and modern pentathlon
Highlights: The overall design of this venue features many of the local characteristics of Fuyang. For example, the cornices of the shooting gymnasium are a typical feature of buildings in the Yangtze River Delta region, creating a quaint and calm atmosphere. One side of the gymnasium walls is equipped with 34,000 rotating pieces in the shape of the ancient Chinese painting *Dwelling in the Fuchun Mountains*, which emerges under the sunlight.

"Green Games" has become a calling card for the Hangzhou Asian Games.

To make the games the world's first waste-free large-scale sporting event, green energy sources have been implemented at all 56 competition venues.

Some of the renewable electricity used at the venues is photovoltaic energy, transmitted from areas such as the Qaidam Basin in Qinghai province, Jiayu Pass in Gansu province and northern-central China's Loess Plateau, while another source is wind power generated in areas including the Xinjiang Uygur autonomous region.

A digital-management platform was also launched to help achieve carbon neutrality during the Asian Games.

On the platform, digital technologies are used in the management of carbon emissions from venues in six cities — Hangzhou and the co-host cities of Ningbo, Wenzhou, Jinhua, Shaoxing and Huzhou — such as data collection, accounting, emissions reduction and evaluation.

Among all 56 competition venues, including 19 for the Asian Para Games, just 12 are newly built, while the rest are existing facilities that have been renovated and refurbished as part of the organizers' sustainable approach.

The Shangcheng Sports Centre Stadium, the venue for football events at the games, was built in 2019. During the renovation of the venue, its solar-film ceiling and spectator seating, which have been used for 14 years but remain in good condition, have been retained after being fully and scientifically assessed. It helped reduce construction costs by nearly 8 million yuan ($1.09 million).

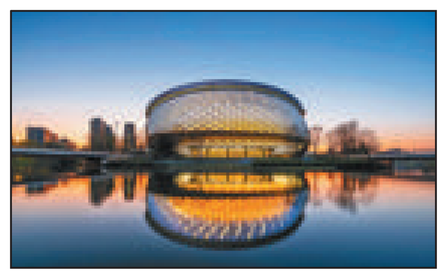
The race track of the velodrome of the Chun'an Jieshou Sports Centre is covered with 374 interchangeable components, which will ensure its sustainable use after the competition.

While preparing for the games, Zhejiang also promoted public access to the venues and hosted sports events in them. Despite the one-year delay of the games due to the pandemic, the venues have not been left idle.

Since May 2022, all the available venues have received 10 million visits, enabling the public to experience their world-class facilities.

After the games, its venues will continue to be used for sports and public fitness.

Venue owners and operators have developed post-games plans for 51 venues, which are expected to host mass fitness activities, professional training programs for national and provincial teams, and additional international events.



Gongshu Canal Sports Park Gymnasium
Seating: 6,800
Floor space: 22,000 square meters
Events: Table tennis, breaking
Highlights: The venue's design was inspired by a jade *cong* — an item used in rituals of the Liangzhu Culture (3300-2300 BC). LED screens on two sides of the stadium and four screens hanging in the center ensure spectators in different sections can watch replays, highlights and public announcement videos.

A cool place to hang out

Award-winning Yangshan Sport Climbing Centre is a marvel of design and construction, boasting a unique blend of semi-open architecture, stunning views and smart technologies

Wenzhou Dragon Boat Centre
Floor space: 23,713 square meters
Outdoor audience capacity: 10,500
Events: Dragon boat racing
Highlight: As the most profession-al dragon boat racing base in China, the center will continue to be a major hub for the sport after the games. It contains a referee tower, standing 57 meters tall, overlooking a 1.2-kilometer-long competition waterway.

Jinhua Sports Centre Stadium
Floor space: 44,064 square meters
Seating: 29,800
Events: Football
Highlight: This venue has been used to host events, including the Asian Track and Field Grand Prix 2017 and home games of the club formerly known as Greentown FC, a CFA Chinese Super League team. It was renovated for the Hangzhou Asian Games in 2019.

Yangshan Sport Climbing Centre in Shaoxing, Zhejiang province, is the world's first fully functional permanent climbing competition venue. PROVIDED TO CHINA DAILY

Ningbo Xiangshan Sailing Centre
Land area: 153,100 square meters
Sea area: 470,000 square meters
Events: Sailing
Highlight: Located within Song-lan Mountain Resort, Xiangshan county, Ningbo, the center boasts excellent environmental conditions for sailing, including sea area, wind direction, ocean current, climate, and water temperature. It currently has 240 berths (800 under planning).

Deqing Geographic Information Park Basketball Court
Floor space: 16,000 square meters
Seating: 1,500
Events: 3x3 basketball
Highlight: This was the last competition venue to be confirmed for use by organizers, with construction completed in just seven months. The park is designated as one of six "zero-waste" venues at the Hangzhou games, which all adopt waste recycling and reuse technologies.

One of the most visually stunning venues of the 19th Asian Games is Shaoxing Keqiao Yangshan Sport Climbing Centre.

Designed in the shape of a silkworm cocoon on the site of an abandoned quarry in Shaoxing, Zhejiang province, the venue is the world's first fully functional permanent climbing competition venue. During the Asian Games, 110 athletes from 16 countries and regions will compete here for six gold medals, from Oct 3 to 7.

The center has already drawn widespread acclaim, winning around 100 awards, both at home and abroad. Recently, it was shortlisted for an award at the 2023 World Architecture Festival.

Local legacies

Designed by the city's Huahui Engineering Design Group, with Huang Huiming as the lead architect, the building is characterized by a harmonious blend of the local landscape and culture.

The "cocoon" was built on the site of a former quarry dating back over 1,500 years. It is believed that Goujian, a king of the Spring and Autumn Period (770-476 BC), used giant stones from the quarry to build the ancient city of Shaoxing, endowing the quarry site with unique and spectacular landscapes.

In the 1960s, the area was filled with soil and mulberry trees were planted, serving as a silkworm farming base for local villagers. However, in the 1990s, the silkworm industry gradually faded away, leaving the site in disrepair and overgrown with weeds.

As Hangzhou is known as the "Silk Capital" and Shaoxing is globally renowned for its textile industry, the design team had the vision to create a monument that would honor both legacies.

"The cocoon has been crafted and serves as a bridge between the past and present, and is also a symbol of transformation and rebirth," according to the design team.

In addition, the venue's design adopts the gardening techniques of borrowing and dividing. Through the hollowed-out curtain wall, audiences are able to enjoy the natural landscapes around it.

"Sport climbing is often described as 'ballet on rocks' and, originally, was exclusively an outdoor activity. So the ancient giant rocks that remained here are a perfect fit for the sport," said Huang.

> "Sport climbing is often described as 'ballet on rocks' and, originally, was exclusively an outdoor activity. So the ancient giant rocks that remained here are a perfect fit for the sport."
>
> **Huang Huiming,** an architect for the Asian Games climbing venue

Innovation abounds

The venue was constructed with the innovative use of ultra-high-performance concrete (UHPC) panels.

The architect's curtain-wall system is composed of 1,600 perforated UHPC panels, which envelop the structure, harmoniously blending the building into the environment while reducing its energy consumption.

"We conducted dozens of experiments to choose the most suitable construction materials. UHPC won out, as it's really robust yet looks very simple and light. The combination of rigidity and softness perfectly suits sport climbing as well," Huang explained.

The venue's semi-open design is economical while also blurring the boundary between indoor and outdoor spaces, creating a shared, open space for the community.

Meanwhile, with a 55-percent perforation rate, the creative design shields athletes from glare and light pollution while enhancing natural light, shading, ventilation, and energy efficiency.

"Some sport climbers said this is the most beautiful and comfortable venue that they have experienced, and they can even see the moon and stars when climbing," Huang added.

Wang Bingyuan, the warm-up training supervisor at the center, echoed those sentiments: "This venue is big and well-equipped with all kinds of facilities. When one climbs to the top and looks back, a stunning view of Yangshan Quarry Heritage Park unfolds through the perforation design. It is very impressive."

A bright idea

The cocoon-shaped center is not only attractive during the day but also showcases its grandeur at night, thanks to smart lighting systems and effects.

Indeed, intelligent technologies have been applied throughout the venue.

Before construction began, the design team employed methods such as digital modeling to assemble the giant UHPC panels. The application of a building information modeling (BIM) system integrates parametric design, construction, transportation and maintenance, combining to greatly improve the center's efficiency.

Construction began in April 2021 and, remarkably, was completed in April 2022.

Huang also noted that smart skylights can be easily controlled to cater to different weather, temperature and humidity conditions, in a bid to make the most of the natural light and save energy.

The venue uses green electricity, which is generated by wind power from northwestern China.

Building a sustainable legacy

State-of-the-art venues all stand on a foundation of minimum waste, maximum functionality

Hangzhou, along with the five co-host cities of Ningbo, Wenzhou, Huzhou, Shaoxing and Jinhua in Zhejiang province, has promised an environmentally friendly Asian Games. From the construction, and in some cases restoration, of the venues, to their operation and utilization both during and after the games, sustainability has been integrated into every detail of the preparations, according to the Hangzhou Asian Games Organizing Committee.

Out of the 56 competition venues for the games, only 12 are newly built. The remaining 44, along with 31 training venues, are all renovated from, or temporarily built on, existing sites.

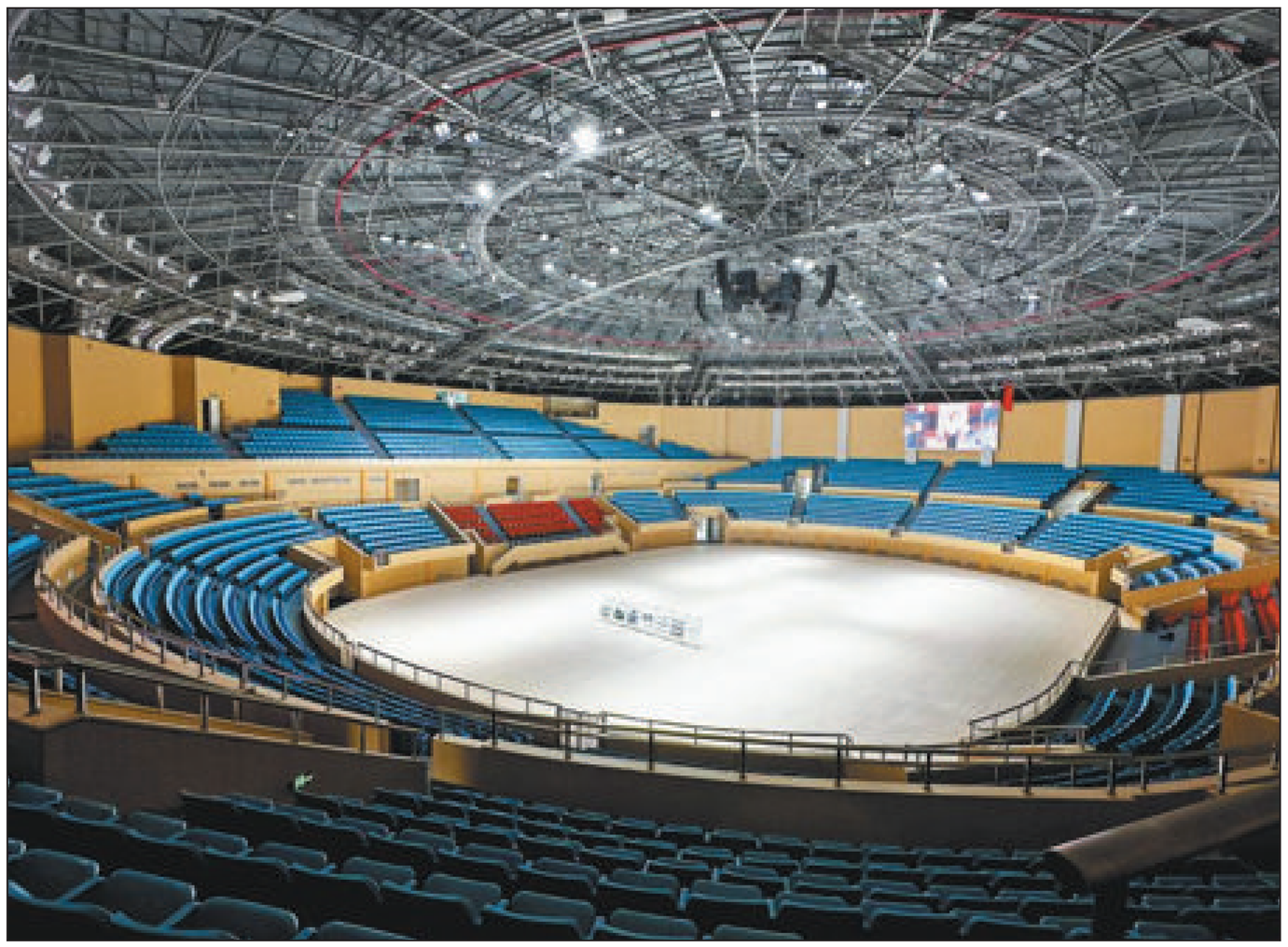
"We have combined Asian Games infrastructure with urban development and construction planning of the host cities," said Qiu Peihuang, director of venue construction on the Hangzhou Asian Games Organizing Committee. "We stick to the principle that the construction of the competition venues is not only for the Asian Games, but also an upgrade to the overall facilities in each city that will serve the communities in the long run."

To ensure sustainability of the venues, the concept of minimum waste has been applied to each one.

Before the renovation of each of the existing venues, the facilities and equipment were comprehensively evaluated for continued use, either for the games or in other places, he said.

Hangzhou Dianzi University Gymnasium, for example, will host the fencing events for the Asian Games and Asian Para Games.

The gymnasium has more than 5,000 seats which have been used since it opened 17 years ago, but they remain in good condition. The organizing committee decided to dismantle and clean the seats and put them back to use in the gym.



Hangzhou Dianzi University Gymnasium will host the fencing events for the Asian Games and Asian Para Games.

The LED screens in the gymnasium, which have been in service for six years, were also relocated to the university's swimming and fitness center for continued use, according to Wang Shuhai, director of waste disposal of the venue operation team of Hangzhou Dianzi University Gymnasium.

In terms of the configuration of facilities and equipment for the competition venues, the organizing committee also applies the principle of minimum waste.

The China Textile City Sports Centre Gymnasium in Shaoxing, originally a basketball stadium, will host the volleyball competitions at the Asian Games. To enable the conversion, a special rubber floor was rented, which is directly laid on the original floor of the basketball court.

"Upon the completion of the games, we can simply return the rubber floor and convert the gym back into a basketball arena," said Dong Gudan, the gym's publicity officer.

Most of the facilities for the temporary venues are set for reuse, as it is the case in the configuration of the Asian Games' squash courts, which are located in a converted exhibition hall of the Hangzhou International Expo Center.

According to Zhou Congcong, director of facilities operation and maintenance of the squash venue, the eight squash courts installed for the games will continue to be used after the games.

"One will be donated to the Asian Games Museum and the other seven will be relocated to communities, schools and other educational institutions, continuing to play a role in promoting squash," Zhou said.

Sustainability is also highlighted in the daily operation of the competition venues.

At the Hangzhou Olympic Sports Centre Aquatic Sports Arena — the competition and training venue for swimming, diving, artistic swimming events — light pipes have been installed to introduce outdoor light during the day and solar-powered light at night.

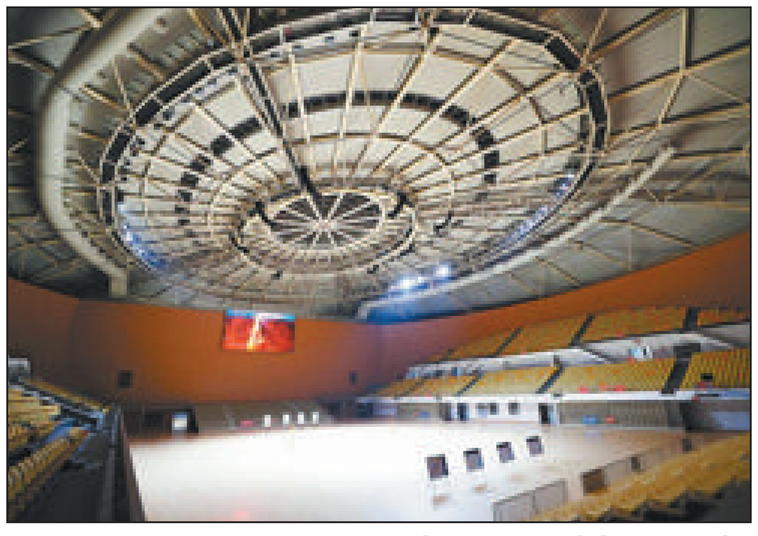
The venue has a water-storage capacity of more than 10,000 tons. Its continuous water-circulation system will automatically detect and disinfect used water. This will save up to 90,000 tons a year, which is equivalent to the annual consumption of 4,000 people.

To save water, a 24-hour uninterrupted water circulation and disinfection system has been installed to ensure that the water in the pools stays clean and clear without the need to change it regularly.

Sustainability is also manifested in the way the competition venues will continue to operate and benefit the host cities after the games, Qiu said.

"We have taken into consideration, and gone to great lengths, to ensure the best use of the competition venues after the games," Qiu said. "The best scenario is that these venues will be able to make money on their own to sustain their daily operation."

The Hangzhou Esports Centre, a newly built venue, is expected to serve as a good example of this. While the center will continue to serve as a key venue for esports, it is also designed to host ball games, concerts, theatrical performances and trade shows to achieve a full range of social benefits.



From left: Asian Games squash courts, the China Textile City Sports Centre Gymnasium in Shaoxing and the Hangzhou Olympic Sports Centre Aquatic Sports Arena.