Empowering the Construction of Quality Home Through Science and Technology

——Global Perspective on the Mainstreaming of Innovative Building Technologies (IBT) Summit in South Africa

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CONTENTS

Contents

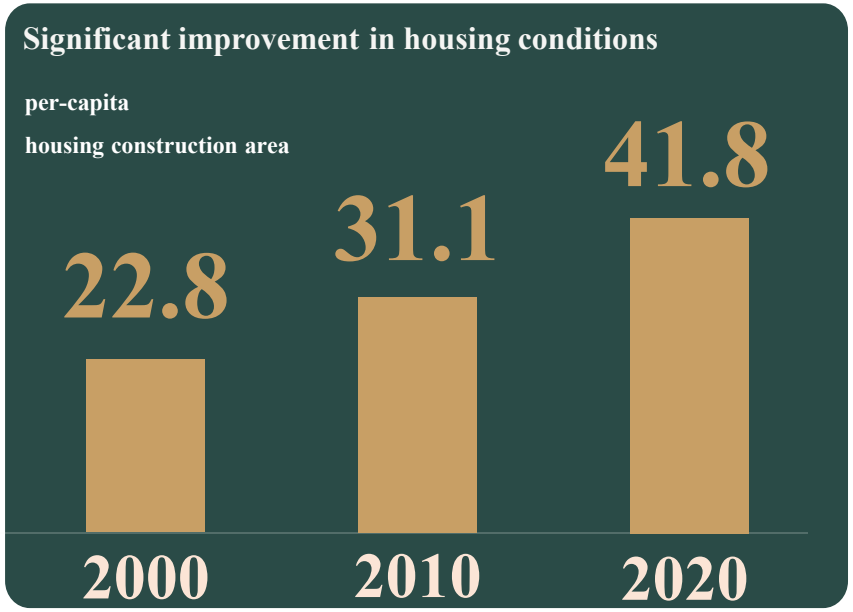
01

“Quality Home” Is the Theme of the New Development Stage

Housing development has transitioned from a paradigm focused on mere availability to the qualitative pursuit of excellence.

“Quality Home” Is the Theme of the New Development Stage

At present, the per-capita housing construction area in China's urban areas exceeded 40 square meters, marking a critical triumph in securing adequate shelter for a population of 1.4 billion. Consequently, the trajectory of housing development has transitioned from a paradigm focused on mere availability to the qualitative pursuit of excellence.



Relevant Policies

Central Urban Work Conference

> **Accelerate the construction of a new model for real estate development, one dedicated to erecting “quality home” which essentially features homes that are safe, comfortable, eco-friendly and smart, so as to better meet the rigid and diverse improvement housing needs of the people.**

“Recommendations of the CPC Central Committee on Formulating the 15th Five-Year Plan for National Economic and Social Development” adopted at the Fourth Plenary Session of the 20th CPC Central Committee

> **Build safe, comfortable, green, and smart “quality homes,” and implement projects to improve housing quality and actions to enhance property management service quality.**

The endeavor to construct “quality home” constitutes a quintessential livelihood project essential for satisfying the people’s aspiration for a better quality of life; a transformational project driving the high-quality advancement of the construction industry; and an ecological project catalyzing green and low-carbon development.

02

Achievements in the Construction of “Quality Homes”

Comprehensive advancement of exemplary standards, outstanding architectural designs, premium materials, superior construction, and efficient operation and maintenance

PRACTICAL ACHIEVEMENTS

Achievements in the Construction of “Quality Homes”

BETTER STANDARD

Exemplary standards

Promulgated and implemented the mandatory national standard, the *Residential Project Specifications*. This comprehensive statute elevated quality requisites across fourteen distinct dimensions, thereby establishing the non-negotiable baselines for the construction of “quality home.”

Highlight 1 – Increasing Floor Height and Clear Height

Content of Improvement	Sense of Gain
Residential floor height increased from “should preferably be 2.8m” to **“shall not be lower than 3.00m”**. Indoor clear height of bedrooms and living rooms **increased from 2.40m to 2.60m.**	1.Reduced sense of oppression. 2.Improved natural lighting, ventilation, and indoor air quality. 3.Increased storage space. 4.Provided conditions for diverse interior decoration options. 5.Facilitated the placement of double beds. 6.Offered more ample spatial conditions for changes in living needs, etc.

4.1.2 The storey height and indoor clear height of newly built residential buildings shall comply with the following provisions:
1.The floor height shall not be lower than 3.00m;
2.The indoor clear height of bedrooms and living rooms shall not be lower than 2.60m; the local clear height shall not be lower than 2.20m, and the area where the local clear height is lower than 2.60m shall not exceed 1/3 of the indoor usable floor area.

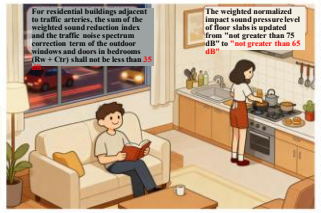
Highlight 2 – Elevators to be Installed from the Fourth Floor Onwards

Content of Improvement	Sense of Gain
The original requirement of “elevators must be installed in buildings of seven floors or more” has been upgraded to **“elevators should be installed in residential buildings where the entrance floor is the fourth floor or above.”**	1.Meets the travel needs of the elderly and those with mobility impairments. 2.Facilitates emergency rescue operations. 3.Enhances convenience for daily travel and transporting goods, reducing the risk of joint injuries and falls. 4.Avoids the future challenge of retrofitting elevators.

4.2.4 Elevator installation in newly constructed residential buildings shall comply with the following regulations:
For residential buildings where the highest entrance floor is the fourth floor or above, or where the height from the highest entrance floor to the outdoor design ground level exceeds 9 meters, each residential unit shall be equipped with at least one elevator. Among them, at least one elevator shall meet the size requirements for stretcher-accessible elevators, and the center of the call button shall be positioned at a height of 0.85 meters to 1.10 meters from the ground.

Highlight 3 – Comprehensive Enhancement of Sound Insulation Performance

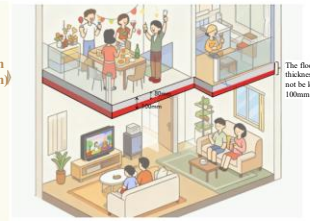
Content of Improvement	Sense of Gain
The airborne sound insulation performance of bedroom party walls and party floors has been improved by 5dB, **reaching a minimum of 50dB.** For residential buildings facing traffic arteries, the sum of the weighted sound reduction index (Rw) and the traffic noise spectrum adaptation term (Ctr) for exterior doors and windows of bedrooms **should not be less than 35dB.**	1.Reduces noise interference from in-building equipment such as elevators and water pumps. 2.Mitigates interference from outdoor environmental noise, such as traffic noise and commercial noise. 3.Minimizes noise disturbances from neighbors, both above and below, as well as adjacent units. 4.Ensures a better home rest environment. 5.Contributes to improved sleep quality.



6.1.1 For the first time, it specifies the structural noise generated by shared facilities and equipment within residential buildings, such as elevators, water pumps, transformers, as well as outdoor air conditioning units or fresh air handling units, that propagates into bedrooms and living rooms.
6.1.2 First clause: Enhances the airborne sound insulation performance of bedroom party walls and party floors, improving the current sound insulation performance for party walls and floors separating residential bedrooms by 5dB.
Second clause: The weighted standardized impact sound pressure level of bedroom and living room floors should not exceed 65dB.
6.1.3 Second clause: Stipulates that for residential buildings facing traffic arteries, the sum of the weighted sound reduction index (Rw) and the traffic noise spectrum adaptation term (Ctr) for exterior doors and windows of bedrooms should not be less than 35dB.

Highlight 4 – Increasing the Minimum Thickness of Solid Concrete Floor Slabs to 100mm

Content of Improvement	Sense of Gain
Increased to 100mm on the basis of meeting the minimum thickness requirement (80mm) for cast-in-situ reinforced concrete solid floor slabs specified in the current mandatory engineering construction standard “General Code for Concrete Structures” GB 55008.	1.Meets requirements for structural bearing capacity, deformation, durability, and floor vibration comfort, ensuring safety. 2.Improves the airborne sound insulation performance of floor slabs, helping to reduce noise interference.



5.0.4 The thickness of solid reinforced concrete floor slabs in new residential buildings shall not be less than 100mm.

Highlight 5 – Increasing the Clear Height of Railings at Open Sides to 1.20m

Content of Improvement	Sense of Gain
The clear height of railings at open sides, such as on balconies, has been increased from “not lower than 1.05m or 1.10m” to **“not lower than 1.20m”.**	1.Based on ergonomics. 2.Takes into account the growth in the average height of the population in China. 3.Ensures a sense of safety for occupants. 4.Reduces the risk of accidental falls.

4.1.15 Where a balcony is provided, it shall comply with the following regulations:
The clear height of balcony railings shall not be lower than 1.20m; the clear distance between vertical members of the railing shall not be greater than 0.11m; and balcony railings shall adopt measures to prevent climbing.

Highlight 6 – Increasing the Clear Opening Width of Entrance Doors to 0.9m

Content of Improvement	Sense of Gain
Upgraded from the previous standard requirement for a door opening size of 1.00m (where the clear opening width often only guaranteed 0.80m) to “the clear opening width of entrance doors in **new residential buildings shall not be less than 0.90m”.**	1.Considers the need for moving large furniture. 2.Meets accessibility requirements (e.g., smooth access for wheelchairs). 3.Ensures safe evacuation of occupants. 4.Facilitates entry and exit for fire rescue personnel carrying equipment.

4.1.14 The clear opening width of entrance doors in new residential buildings shall not be less than 0.90m, and the clear opening width of entrance doors in existing residential buildings undergoing renovation shall not be less than 0.80m.
The clear opening width of bedroom doors shall not be less than 0.80m, and the clear opening width of kitchen doors and bathroom doors shall not be less than 0.70m; conditions for accessibility retrofitting shall be reserved.

PRACTICAL ACHIEVEMENTS

Achievements in the Construction of “Quality Homes”

BETTER SDESIGN

Outstanding architectural designs

Organized and guided relevant entities in convening two successive National “quality home” Design Competitions. These initiatives were orchestrated to steer **architects and young students** to address multifarious living needs, conceptualizing “quality home” solutions that encompass **a diverse spectrum of unit types and floor areas.**

PRACTICAL ACHIEVEMENTS

Achievements in the Construction of “Quality Homes”

BETTER MATERIALS

Premium materials

100+ Pilot cities

Pilot Program for Government Procurement to Support Green Building Materials and Promote the Enhancement of Building Quality

50+

Building Materials

“Open Competition and Merit-Based Selection""Approach

Focusing on the Pain Points and Difficulties in the Research and Application of High-Quality Materials

1. **Research and Application of Aerogel and Other New Thermal Insulation Materials and Their Exterior Wall Insulation Systems**
2. **Research and Application of Vacuum Insulation Panels and Their Exterior Wall Insulation Systems**
3. **Research and Application of Radiant Barrier Composite Coatings**
4. **Research and Application of Multifunctional Energy-Efficient Window Systems**
5. **Research and Application of Key Technologies for New Sound Insulation Materials and Systems in Residential Buildings**
6. **Research and Application of High Weather-Resistant Exposed Modified Asphalt Waterproofing Materials and Their Systems for Roofing Works**
7. **Research and Application of Low-Attenuation Corrosion-Resistant Luminescent Concrete**
8. **Research and Application of High-Efficiency, Long-Life Integrated Functional Coatings for Decorating and Preventing Indoor Chemical and Microbial Pollution**
9. **Research and Application of Functional Panels for Preventing Indoor Chemical and Microbial Pollution**

PRACTICAL ACHIEVEMENTS

Achievements in the Construction of “Quality Homes”

BETTER CONSTRUCTION

Superior construction

Vigorously promote the innovative construction methodologies, such as intelligent and green building practices, alongside guidance for industry vanguards in establishing robust frameworks for “quality home.”

“6633” construction system

Six prohibitions

Mold-free, clog-free, leak-free, noise-free, crack-free, odor-free

Six precautions

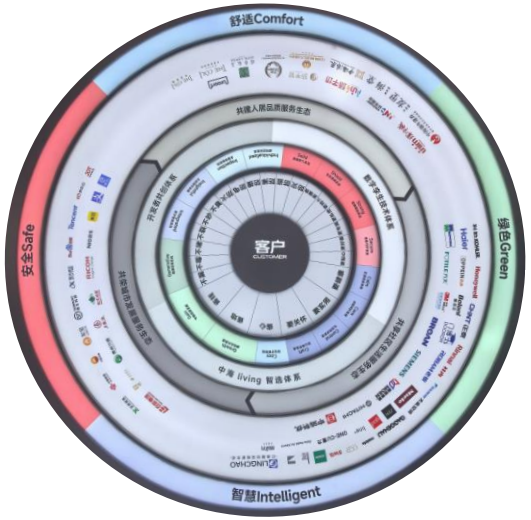
Electric shock prevention, fire prevention, disaster prevention, theft prevention, collision prevention, fall prevention

Three savings

Hassle-saving, space-saving, cost-saving

Three imperatives

Health-oriented, practical, and caring



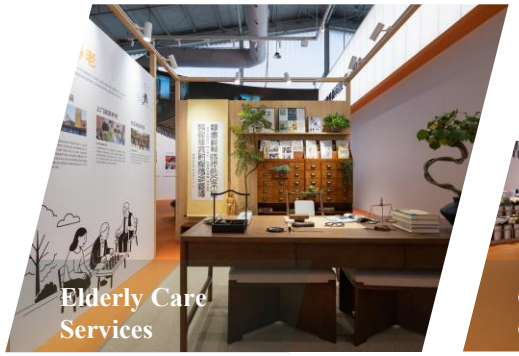
PRACTICAL ACHIEVEMENTS

Achievements in the Construction of “Quality Homes”

BETTER OPERATION

Efficient operation and maintenance

Establish comprehensive frameworks for lifecycle structural safety inspections, dedicated safety management funds, and quality security insurance systems have been instituted to fortify the housing safety and security. Concurrently, initiatives to elevate property service quality have been rigorously implemented, targeting the resolution of the “critical minutiae” of daily life that exert a tangible daily impact on community residents.


Elderly Care Services


Community Childcare


Community Sports


Pocket Park


Community Market

03

Mainstream Technologies for “Quality Home” Construction

Mainstream technological innovations such as intelligent design, green building material, novel construction, and intelligent operation and maintenance.

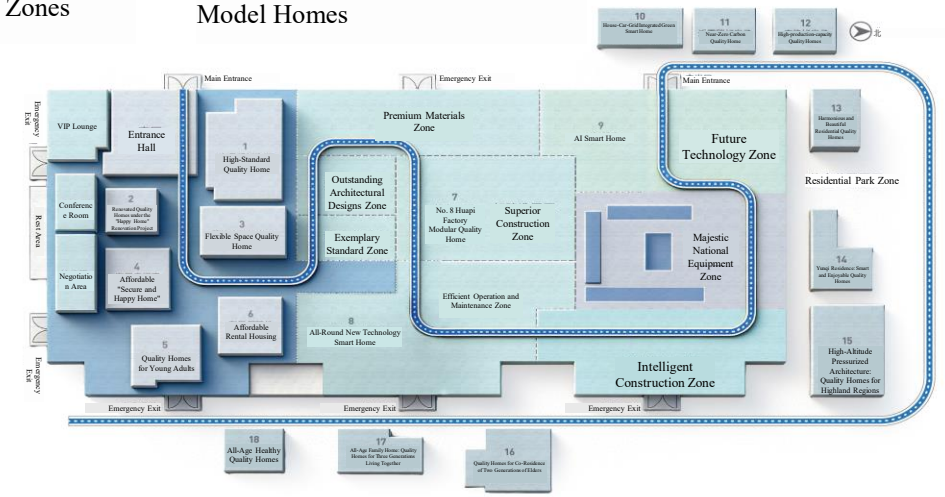
Mainstream Technologies for “Quality Hom” Construction

Technological innovation stands as the quintessential core driving force propelling the construction of “quality home.” In recent years, China has consistently consolidated and elevated its world-leading technologies, while concentrating efforts on surmounting critical bottlenecks and vigorously promoting the widespread adoption of practical technologies that tangibly benefit the populace.

In 2025, we will organize and convene the “Better House Technology Exhibition,” providing a systematic showcase of the latest technological achievements underpinning superior residential development.

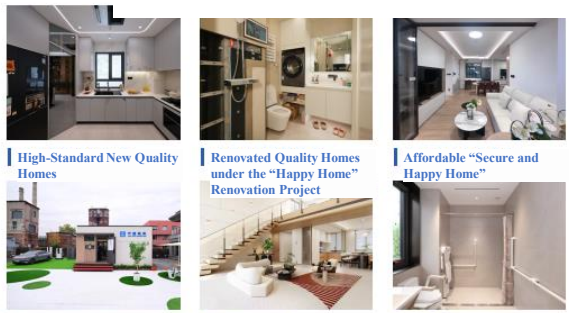
10 Exhibition Zones

18 “Quality Home” Themed Model Homes



Better House Technology Exhibition

Technology Empowerment Builds Better Houses,
Industrial Upgrading Drives New Development



High-Standard New Quality Homes

Renovated Quality Homes under the “Happy Home” Renovation Project

Affordable “Secure and Happy Home”

House-Car-Grid Integrated Green Smart Home

Near-Zero Carbon Quality Home

Elderly-Friendly Quality Home

Flexible Space Quality Home

Plateau Quality Home

All-Round New Technology Smart Home

Entrance Hall

Exemplary standards

Outstanding architectural designs

Premium materials

Superior construction

Efficient operation and maintenance

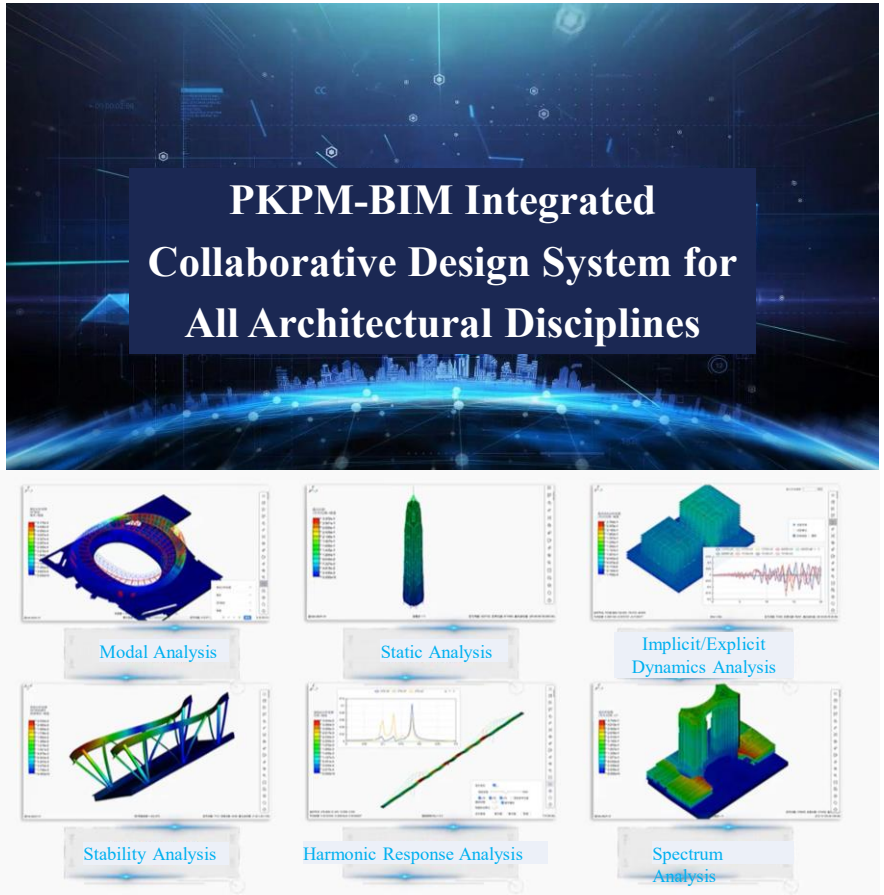
Intelligent Construction

Majestic National Equipment

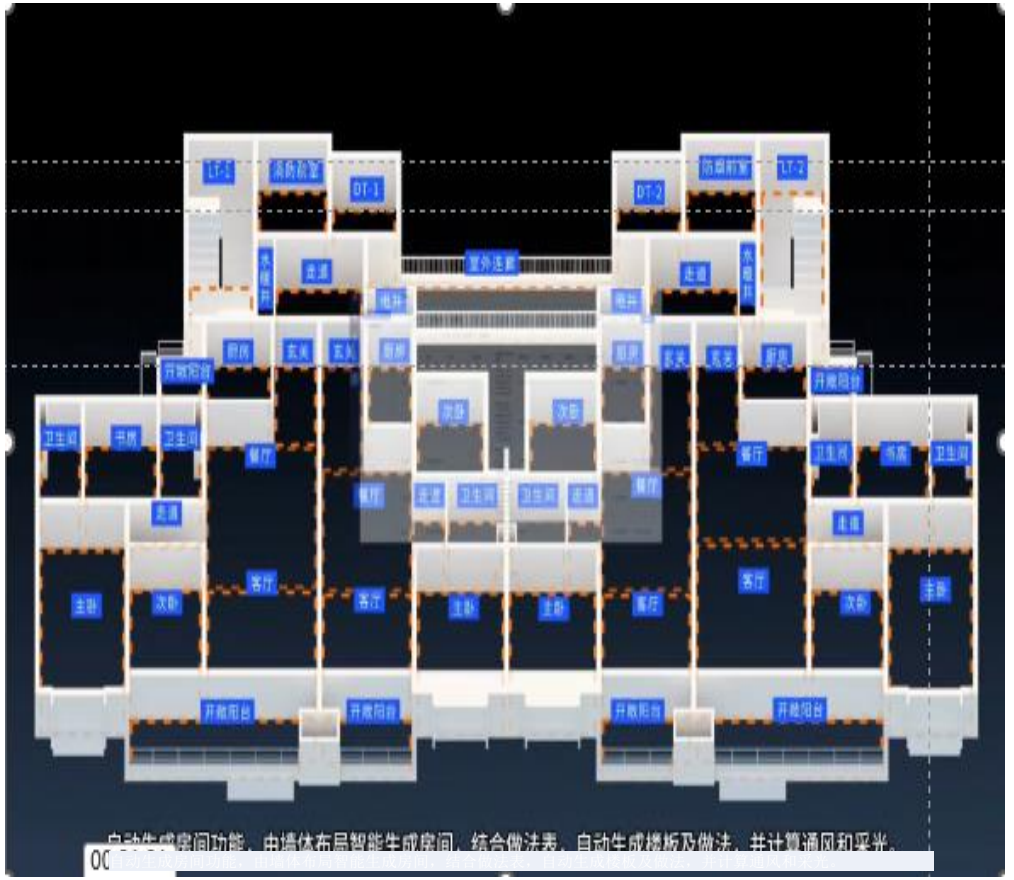
Future Technology

Mainstream Technologies for “Quality Home” Construction——Intelligent Design

The utilization of Artificial Intelligence and Building Information Modeling (BIM) has realized the “instant visualization of conceptual intent.”



BIM digital-intelligence design software, applying spatial definition modeling algorithms to significantly improve design efficiency.

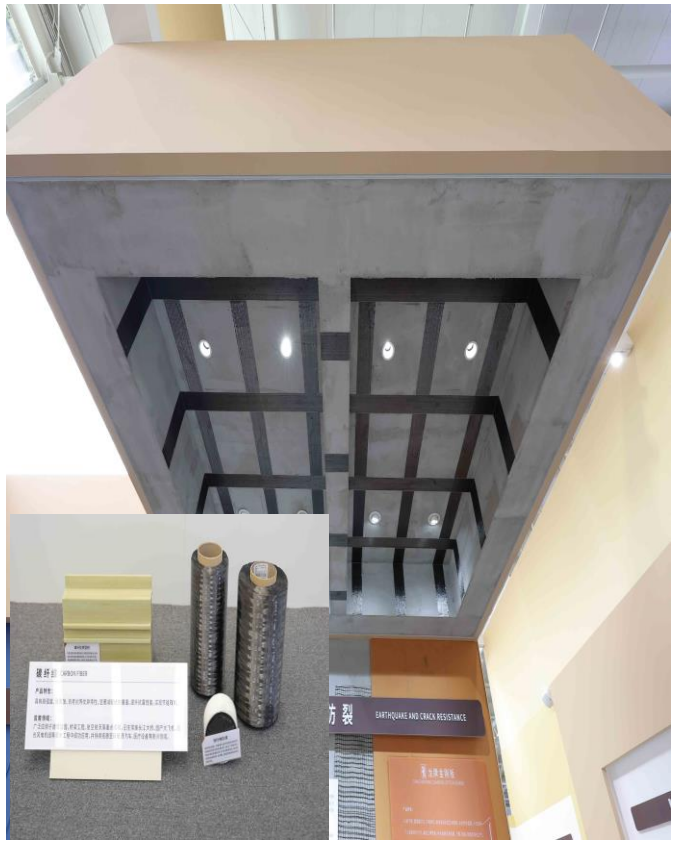


AI architectural design system, shortening the design cycle by over 60%.

GREEN MATERIALS

Mainstream Technologies for “Quality Home” Construction——Green Building Material

Solving housing pain points by improving the performance of building materials.



Carbon fiber materials can increase structural load-bearing capacity by 30%-50%.

Aerogel materials feature low thermal conductivity, are non-combustible, and moisture-proof.

Self-healing inorganic waterproofing materials offer a durability of over 50 years.

Power-generating glass integrates thermal insulation functions and can meet the power generation needs of buildings.

Mainstream Technologies for “Quality Home” Construction——Novel Construction

Driving the transformation of the construction industry through green construction and intelligent construction.

Modular construction technology enables building houses like manufacturing cars, shortening the construction period by up to 80%.

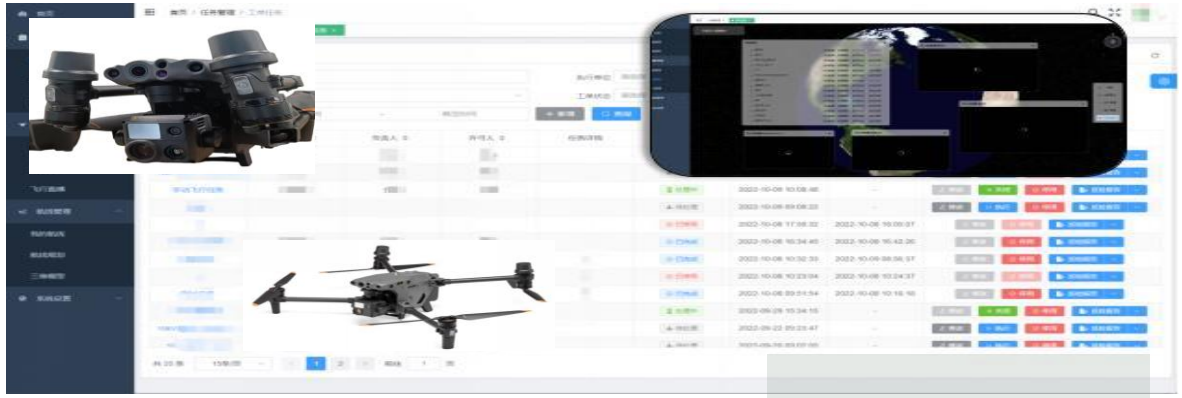
The “Tianchan” construction robot system can achieve a construction speed of one floor every 5 days.

The “Jinghua” shield tunneling machine, with a maximum excavation diameter of 16.07 meters, enables millimeter-level control.

Mainstream Technologies for “Quality Home” Construction——Intelligent Operation and Maintenance

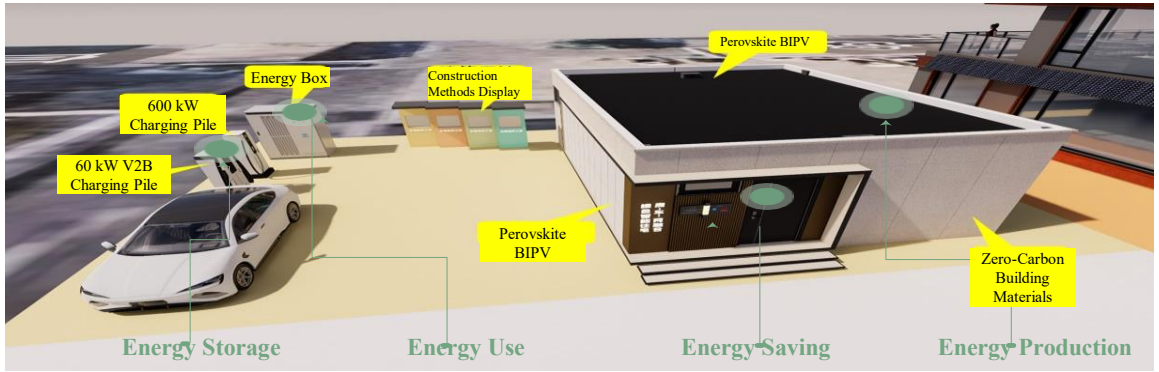
Leveraging technologies such as the Internet of Things (IoT) and artificial intelligence to provide building operation and maintenance services.

Whole-house intelligence, enabling interconnectivity among home products.



Smart housing safety monitoring, achieving real-time monitoring of exterior wall detachment and falling objects.

Home service robots, making life easier.



House-Car-Grid system, realizing the interaction and smart scheduling of energy between homes, vehicles, and the power grid.

Housing stands as a fundamental cornerstone of people's livelihoods. China stands ready to deepen exchanges and cooperation regarding "quality home" construction with nations across Africa, including South Africa. We aim to inject robust livelihood-driven momentum into the China-Africa Comprehensive Strategic Partnership. May our enduring friendship blossom with even greater brilliance as we collaborate in the construction of "quality home" and the realization of the shared "Dream of Decent Living."

In conclusion, I wish this conference a complete success! Thank you all!