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COMMUNION BUILDING AND ECO-FRIENDLY DEVELOPMENT

Yuexiu Property is committed to a healthy and comfortable working and living space for local communities, and efficient use of resources to live in harmony with nature. Therefore, Yuexiu Property fully integrates the concept of sustainable and low-carbon development in the process of R&D, design, management and operation. Yuexiu Property believes that eco-friendly development strategy can rebuild the unity of organic harmony between human being and nature, achieve the high-level coordinated development of social economy and natural ecology, and establish the civilized relationship between human being and sustainable development, which leads to both coexistence and mutual interest between man and nature and mutual prosperity of ecology and economy.





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7.1. ECO-FRIENDLY STRATEGY

Yuexiu Property follows the coordinated and interactive pattern of economic, social and ecological systems. In 2017, Yuexiu Property strengthened the identification and management of environmental risks. According to the relevant requirements of the Environmental Protection Law of the People's Republic of China and the National Hazardous Waste Inventory, the Group formulated the Environmental Factor Identification and Assessment Management Procedure and the Waste and Chemical Management Procedure, requiring all the departments to actively cooperate and identifying the environmental impacts caused by pollutants such as waste gas, waste water, waste and noise in a timely manner. At the same time, Yuexiu Property pays attention to the cultivation of eco-friendly building specialists. As of the end of 2017, Yuexiu Property has 15 assessment specialists with the Guangdong eco-friendly building logo.

7.2. ECO-FRIENDLY BUILDING

According to the Group's sustainable development strategy, Yuexiu Property designed and built its own projects with reference to National Guidelines for Design of 1- and 2-Star Eco-friendly Building, Management Measures for 1 and 2-Star Eco-friendly Building Identification Logo (For Trial Implementation) and Detailed Rules for Implementation of Eco-friendly Building Identification Logo (Revised for Trial Implementation). According to the Detailed Rules for Management of Eco-friendly Building Construction Projects, Yuexiu Property adopted comprehensive and full-process project control from the project initiation stage to the post-operation assessment stage.

With respect to the promotion and application of eco-friendly building-oriented design, management and other means, Yuexiu Property uses smart design means, such as CFD, Ecotect and other CAD analysis software, and routinely integrates them into the planning and design process, and includes them in the Company's standards as the prescribed steps of project design, so as to intervene project planning and design as early as possible and minimize consumed resources.

Yuexiu Property completed four eco-friendly building certifications in 2017, with a total certified area of 274,613 sq.m..

Key Projects of Yuexiu Property with Eco-Friendly Building Certification in 2017

Project Type	Project Name	Certification level	Certified Area (sq.m.)
Residential property	Building A1-A4, Starry Haizhu Bay, Guangzhou	1-star National Eco-friendly Building	127,920
Commercial Property	Building A5, Starry Haizhu Bay, Guangzhou	1-star National Eco-friendly Building	32,082
Residential property	Building B1-B3, Starry Haizhu Bay, Guangzhou	1-star National Eco-friendly Building	91,878
Commercial Property	Building B4, Starry Haizhu Bay, Guangzhou	1-star National Eco-friendly Building	22,733



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Eco-Friendly Building Practices

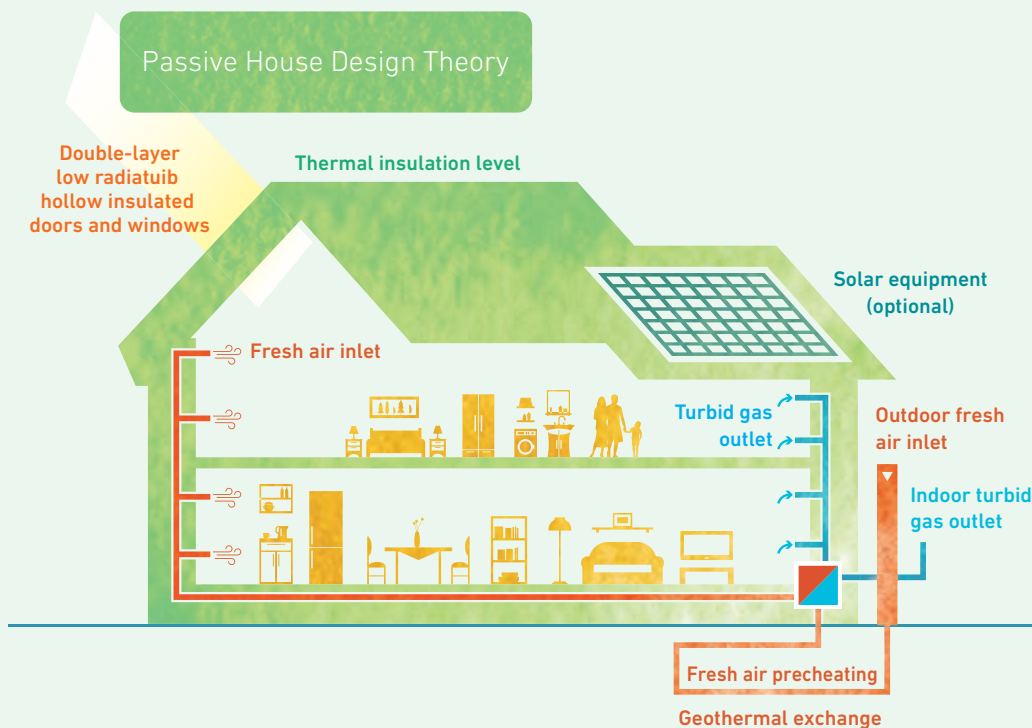
"Passive House", also known as "passive ultra-low energy greenhouse", is a new concept of energy-saving buildings from Germany, which originated in the 1980s. Passive house is a highly energy-saving and comfortable building, which achieves constant temperature, humidity and oxygen in all seasons through ground, walls, doors and windows insulation, fresh air system and renewable energy sources, such as solar and geothermal energy.

As early as five years ago, Yuexiu Property has been practicing the philosophy of eco-friendly building in their actions. In Starry Cullinan (Guangzhou), Starry Regal Court (Jiangmen), Starry City (Hangzhou) and other projects, it used a large amount of energy-saving and environment-friendly materials. It helps buildings achieve the effect of "being warm in winter and cool in summer" from three aspects, i.e. external wall insulation, roof insulation, doors and windows insulation:

- **External wall insulation:** Yuexiu Property used aerated concrete block wall to achieve heat insulation for the main external walls of the Starry Cullinan project (Guangzhou); In the Starry City project (Hangzhou), we upgraded the wall insulation materials, using sintered shale hollow block and expanded glass bead insulation mortar. In hot summer, indoor temperature is maintained at 24°C - 28°C , so only electric fans can also make owners feel comfortable.
- **Roof insulation:** The Guangzhou Starry Cullinan project used a new extruded polystyrene board as heat insulation material for roofs, while roof floating plates are covered with high reflection coating, effectively reducing the heat island effect of roofs.
- **Door and window insulation:** In the insulation design of doors and windows, Yuexiu Property's projects widely use Low-E hollow glass. The glass can effectively insulate against heat, sound and radiation. By blocking and reflecting a large amount of solar energy, it can reduce cooling load of air conditioners in summer and indoor heating loss in winter, and improve the heat insulation performance of windows in winter.
- **Fresh air system:** This system delivers fresh air being filtered from outdoor to home, and discharges the indoor turbid air after energy exchange to the outside, thus reducing energy loss. It saves electricity for owners while ensuring fresh air.



[Case Study]





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Guangzhou Starry Haizhu Bay has obtained the 1-Star Eco-friendly Building Design Logo

Project design highlights: Taking the passive technologies as the priority, the project comprehensively used the eco-friendly and building energy-saving technologies suitable for residence, meeting the requirements of one-star eco-friendly building design logo stated in the Eco-Friendly Building Assessment Standards with respect to indicators in the following six aspects: land saving, energy saving, water saving, material saving, indoor environment quality and operation and management.

- Multi-layered landscaping is employed by combining tree, bush and grass. Plants are reasonably configured by choosing those suitable for local climates and soil conditions. In the landscaping configuration, the intensity of trees reached 3 trees per 100 sq.m..
- High-efficiency light sources, high-efficiency lamps and energy-saving control measures are used in public areas, and energy-saving switches are used for stair lamps and corridors to save lighting-related energy consumption.
- The water efficiency of water-saving appliances is all level 3, effectively saving water resources.
- Structure and materials are reasonably selected for exterior walls, exterior windows and floors. The air sound insulation capacity of the enclosure structures meets the requirements, reducing the indoor background noise level.
- Water meters and power meters are installed per household for separate metering and billing as effective measures to save water and electricity.



[Case Study]



7.3. ECO-FRIENDLY CONSTRUCTION

Yuexiu Property strictly complies with Yuexiu Property Standardization Atlas for Safe and Civilized Construction, which sets specific requirements on wastewater discharge, construction waste treatment, environmental sanitation of the construction process, and demands suppliers (construction units) with contract constraints to implement these requirements. Yuexiu Property is committed to minimizing the environmental impact of its construction process.

Yuexiu Property insists on carrying out comprehensive environmental impact assessment on its newly-built projects. In 2017, the construction projects under Yuexiu Property did not have any significant negative impact on the environment and natural resources.



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Regional Companies Practice Eco-friendly Construction in Depth



[Measures]

Shenyang Company

- Construction sites are reasonably planned. The stock sites of fine decoration materials are moved from outdoor to indoor underground garage, effectively avoiding dust and land pollution. In addition, in the process of construction, waste can be classified for storage and centralized for pickup among other things.
- In order to make full use of design resources, Shenyang Company used ceramic tiles instead of stone for some parts during decoration. Energy-saving and environment-friendly materials were used for indoor decoration. Indoor air quality was maintained at level 1 standard. During the fine decoration process, finished parts were well protected to maximize material savings.

Guangzhou Company

- The use of new construction materials was promoted. Aerated concrete block and other new non-clay wall materials were widely used, protecting and saving non-renewable land resources.
- New technologies with obvious material saving effects, such as steel bar straight threaded connection and electroslag pressure welding technology, were employed to reduce the waste of steel bar tailings at the construction site.
- Temporary facility and containment materials were reused.

Yuexiu Starry Tunnel, Shenyang

In order to improve the living experience of owners and effectively solve the noise problem, Yuexiu Property built the first noise reduction "road cover" in northeast China - Yuexiu Starry Tunnel for Shenyang Yuexiu Starry Winking. The whole soundproof cover is approximately 900 metres long, and the tunnel covers the south boundary of Yuexiu Starry Winking.

The tunnel uses a steel frame matched with metal composite sound absorption plates, lighting sound insulation plates and ventilation metal grid plates, can effectively block traffic noise by 25-30 decibel, and meets the requirements for international premium living environment. In addition, the tunnel has the functions of fire prevention, ventilation, wind prevention, snow load and the like, and is internally provided with lighting measures and green belts, and features top surface cleaning and structural maintenance among others.

The Yuexiu Starry tunnel was established to improve the life quality of the project owners and seek to benefit the vast number of surrounding residents.



[Case Study]





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7.4. ECO-FRIENDLY PROPERTY

Yuexiu Property and its affiliated property service companies gradually promote and optimize various measures, and establish relevant management regulations in order to reduce carbon emissions, improve electricity efficiency and water saving intensity. For example, we chose a large amount of energy-saving LED lamps, efficient variable frequency energy-saving water supply pump set, and energy-saving variable frequency control VRV air conditioning unit, and installed timer control for toilet exhaust and indoor ventilation fan equipment; Sanitary Ware is all water-saving ones.



[Case Study]

Guangzhou property service company actively promotes the lighting system renovation project

In 2017, the Guangzhou property service company started the energy saving improvement project for lighting systems in the 15 service centres and car parks under its management. By using energy contracts, original fluorescent lighting systems were transformed into LED lighting systems, and manual switches were transformed into sound control switches. The amount invested was RMB29,200 for the 15 service centres and car parks to purchase lighting lamps and energy-saving lamps, thus saving a total of 380,000 Kwh for the whole year.



[Case Study]

Old Property Renovation - Zhonggang Leather City

The greenhouse gas emission of Yuexiu Zhonggang Leather City (known as Xiangkang Commerce Building) in Guangzhou largely came from the energy consumption in daily operation, particularly air conditioning and shop lighting. In recent years, the energy consumption of air conditioning was mainly reduced through the transformation and replacement of some high-energy consuming equipment and aging air conditioning insulation layer; In daily operation, energy waste was reduced by strengthening the building patrolling, paying close attention to the indoor and outdoor temperature, and adjusting the start-stop time of the host in a timely manner; In the aspect of lighting, the energy consumption of downlights and light-pipes of high floor energy consumption is reduced by replacing them with LED lamps of low energy consumption.

In 2017, the downlights and light pipes of high floor energy consumption were replaced with LED lamps of low energy consumption, and the damaged insulation layer of chilled water pipes for air conditioning were replaced. As a result, 5% of water and electricity were saved respectively on a year on year basis.



Yuexiu Zhonggang Leather City



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Yuexiu Financial Tower was recognized by Tianhe CBD Building Sustainability Index

Dual Eco-Friendly Building Certifications

Yuexiu Financial Tower is a demonstration project of eco-friendly buildings in Guangzhou. In the early planning stage, the concept of eco-friendly building design has been introduced. It boasts of high-efficiency cold and heat source equipment, full heat recovery fresh ventilation system, solar photothermal technology, adjustable external shading, rainwater recycling and light pipe lighting technology among others. The green concept has been well implemented from design to construction.

At present, Yuexiu Financial Tower has been awarded LEED-CS Gold Pre-certification and 3-star National Eco-friendly Building Design Logo, and considered the model project of the National Science and Technology Support Program "R&D and Demonstration of Key Energy Conservation Technologies in Hot Summer and Warm Winter Area", and given the title of "Guangzhou Eco-Friendly Building Demonstration Project".

Recognized by Tianhe CBD Building Sustainability Index

In 2017, Yuexiu Financial Tower passed the Tianhe CBD Building Sustainability Index, which was organised by the Guangzhou Tianhe CBD Management Committee and the Hong Kong Quality Assurance Agency (HKQAA). As the first office building in Guangdong whose property management company obtained four standards in one certification (ISO9001, ISO14001, ISO50001, and OHSAS18001), the air conditioning cabinet at each floor of Yuexiu Financial Tower is installed with photocatalytic filters and double air filters, making PM2.5 interception rate reach 99% and formaldehyde and benzene removal rate reach 90%, so as to ensure fresh air for the building, and a third party has been commissioned to conduct an air quality inspection every quarter.



[Case Study]



Yuexiu Financial Tower



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Yuexiu Financial Tower was recognized by Tianhe CBD Building Sustainability Index (Continued)

Energy Saving Renovation

In 2017, Yuexiu Financial Tower achieved the goal of saving energy by 1% in the whole year through the continuous implementation of energy-saving measures. The largest carbon emission of the building comes from electricity, and the carbon intensity of the building is 1.93 kg carbon dioxide equivalent/year/1,000 sq.m., which is approximately 10% lower than 2.15 kg carbon dioxide equivalent/year/1,000 sq.m. in 2016. The energy saving measures taken by Yuexiu Financial Tower include:

- The lighting is turned on or off at regular intervals using the intelligent lighting control system for its public areas
- Radar sensors and LED lamps were installed for the underground car park
- The air conditioning system adjusts temperatures by adding or removing units through the cold source group control
- Solar heated water is supplied for the toilets of 60th floor or above

With the above energy saving measures combined, the electricity consumption intensity decreased from 7.9 W/sq.m. in 2016 to 7.1 W/sq.m. in 2017 for the public areas, down 10% year on year.

Water Saving Renovation

Water-saving measures taken by Yuexiu Financial Tower include:

- Condensate water is collected and recycled from the air conditioning system
- Rainwater is collected and recycled

Water consumed in the public areas decreased from 91,957 m³ (0.7 t/sq.m. per capita) in 2016 to 106,641 m³ (0.693 t/sq.m. per capita) in 2017, down 1% year on year.



[Case Study]



Lobby View



Intelligent Elevator Dispatching System reduces elevator waiting time



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7.5. ECO-FRIENDLY OFFICE

In addition to its own products, Yuexiu Property also attaches great importance to the environmental impact in terms of energy consumption and resource use at its own office, and actively implements the philosophy of Eco-friendly Office, and therefore formulated Yuexiu Property Office Area Administration Guidelines to manage the use of energy in its office space and create an eco-friendly workplace.

7.5.1. Office Energy Consumption Reduction

The following provisions in the Yuexiu Property Office Area Administration Guidelines impose mandatory requirements on energy saving measures in its office areas, and require designated personnel of each department to be responsible for the management of electricity consumption in the office area within the department, so as to ensure that the lights and related fixtures and equipment such as computers and printers are turned off in time when the last person leaves his/her office. The last leaving colleague is responsible for checking whether there are unsafe factors such as water and electricity-related ones in the office area and turning off them when he or she leaves.



[Measures]

Yuexiu Property Office Area Power Saving Measures

- Power Saving - Lighting. Energy-saving lamps are used inside and outside the office areas. For the office areas with better natural lighting conditions, natural lights are taken full advantage of during the daytime; The number of lights is minimized at night for the common areas. Power is turned on and off for roads in the office areas at fixed time every night. Lights should be turned off when no one is in the office. Both day and ever-on lights should be strictly avoided.
- Power Saving - Office equipment. It is necessary to set the power saving mode to be on when office equipment is idle and turn off them in time if they will not be in use for a long time, reducing energy consumption when standby.
- Computer displays are adjusted to an appropriate brightness.
- Chargers are unplugged when they are not in use to avoid long-term electricity consumption.
- It is strictly prohibited to connect and install lights and power sockets without permission. If it is indeed necessary, it shall be approved by the general administration department.



[Data]

Energy Consumption of Yuexiu Property in 2017

	Total 2017	Density 2017 (per RMB1,000,000 revenue)	Density 2017 (per person)
Gasoline (litres)	195,158.90	8.20	26.81
Diesel (litres)	63,919.60	2.69	8.78
Natural gas (m ³)	1,545,252.00	64.95	212.26
Pipeline gas (m ³)	54,779.80	2.30	7.52
Canned liquefied petroleum gas (kg)	8,598.00	0.36	1.18
Electricity consumption (KWH)	55,241,556.91	2,322.05	7,588.13
Total Energy Consumption (KWH)	74,913,159.00	3,148.94	10,290.27

Note: The annual environmental statistics for 2017 covers Yuexiu Property's office areas (including a total of 15 office areas, i.e. those of the headquarters, branches and regional companies), and the residential and commercial properties managed by the Group (including the waste, energy consumption, water consumption and carbon emissions of the property management office and non-shared areas). The data with respect to energy consumption, water consumption, and greenhouse gas emissions were only collected for the projects under operation for 12 months or more as a going concern.



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7.5.2. Water Saving - Office

Yuexiu Property pays attention to water saving and consumption reduction, starting from daily life, with administrative, technical, economic and other administration means to strengthen water management, adjust the structure of water use, improve the way of water use, and utilize water scientifically and reasonably, to avoid the waste of water resources and also improve the staff's awareness of water saving.



[Case Study]

Water Saving Measures for Office Areas at Yuexiu Property

- Automatic induction faucets and Energy-saving flush toilets are employed, while buckets are put in the washroom to recycle tea water for plants.
- Dripping faucets are repaired in a timely manner, and bubbling, overflowing, dripping and leaking are strictly prevented, so as to put an end to the "running water" phenomenon.
- The recycling of water resources is implemented. A waste water recycling pool has been set up. The recycled water is reused for site cleaning and other non-production functions after sedimentation, so as to reduce the amount of tap water used. Recycled water is used for watering plants whenever possible.



[Data]

Water Consumption of Yuexiu Property in 2017

	Total 2017	Water consumption intensity (per RMB1,000,000 revenue) 2017	Density 2017 (per person)
Total water consumption (m ³)	2,805,950.55	117.95	385.43



[Case Study]

Hainan Company - Water Saving Measures in the Construction Stage

The Hainan Company has taken a number of water-saving measures during the construction phase of projects, such as water-saving sanitary ware, automatic flushing electric detector and water-saving shower head among others. In the process of daily property management, we also developed a concrete water management system, and regularly monitored monthly water consumption, further controlling daily water consumption.





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7.5.3. Make the Best Use of Resources

According to the business nature and actual operation of Yuexiu Property, the types of waste are mainly general wastes, such as waste paper, paper skin, and construction waste with a small amount of wastes that have a greater impact on the environment, such as waste lamps. Wastes largely come from office areas, construction sites and public areas of the properties under management. Yuexiu Property strictly implements solid waste treatment methods, such as discharge after treatment, separate storage, solid waste recovery and sewage and soil treatment, so as to achieve reduced volume, harmless and recycled resources and better environmental benefits.

Waste Treatment and Recycling		
ESG Indicator	Unit	Quantity
Waste		
Waste fluorescent tube	Piece	19,408
Printer cartridge	piece	839
Horticultural waste	Ton	813.70
Waste recovery		
Recovery of waste paper/waste paper skin	Ton	214.89

(Note: according to the business nature and actual operation of Yuexiu Property, the wastes are mainly those generated from living and office sources, without any waste in Hazard Waste Inventory of the People's Republic of China)



[Case Study]

Hainan Company - Emission Reduction

The Hainan Company strictly implements the national and local environment friendly emission standards to reduce emissions and energy consumption: Wherein, flue gas generated by generators is discharged after synchronous treatment with secondary circulating water spraying; The kitchen fume is discharged after being successively treated through different functional segments, such as filtration and static electricity; In addition, the Hainan Company has installed water spray cooling measures for outdoor air conditioning units, and the hot air generated by air conditioning evaporators will be synchronously cooled by spray water. The results of several inspections conducted by the environmental protection department are in line with the requirements thanks to our great attention and strict implementation of energy conservation and emission reduction.



[Case Study]

Guangzhou Company - Solid Waste Treatment Measures at Project Sites

- Separate warehouses of hazardous and toxic materials are set up at project sites.
- Onsite materials should use packaging materials reasonably, reducing scraps, wastes and hazardous wastes as much as possible, making effective sorting, and recycling wastes properly.
- Dedicated recycling points are set up for waste batteries, which are recycled by recyclers with specialized qualifications.
- Measures such as replacement, protection and management are taken to carry out harmful soil management.