

Guangzhou Nansha Lingshan Island Area

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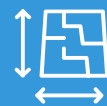
Population : 46 200

Number of jobs : 26 400

Starting year of the project : 2014

Delivery year of the project : 2020

Key words : Green ecological demonstration city, sponge city, smart city, building quality, urban design, traffic improvement



348.5



2 147 483 647 ¥

Certifications :

ID CARD

Located in the southernmost of Guangzhou .Nansha New District is the geographical and geometric center of the Pearl River Delta. It is an important hub and comprehensive transportation hub connecting the both banks of the Pearl River Estuary. The Lingshan Island area is part of the pioneering start-up area of the Nansha New Area, located in the Pearl Bay start-up cluster as an important part of Nansha Green Pilot Free Trade Zone. The region is powered by green leadership, with green economy as the main line, green finance as the support, green infrastructure as the guide, green environment as the foundation, attracting global high-end green development elements, and establishing the green brand of Nansha Free Trade Zone. The construction management adopts the organizational model of “Management Committee + Mingzhuwan Office + Platform Company” which is led by the government, operated by market with participation from enterprises. Under the overall decision and guidance of the management committee, all departments have strengthened division of labor and cooperation, improved the linkage mechanism, and realized the multi-party construction of the government, enterprises and society, and the win-win situation.

Nansha is the opening bridgehead of Guangzhou's economic market. As the Antecedent construction area of Nansha, the region takes green economy as the main line, carries out green marketing and green investment, highlights the development of green finance, optimizes industrial structure and trade structure. It strives to build a central business core area of the Pearl River Bay area with the integrated service function for city and cooperative service function of Guangdong, Hong Kong and Macao. It has attracted high-end industries such as Yuexiu International Financial Center, Provincial Transportation Group zhihui crystal valley project and CICC south of the Five Ridges Southern China headquarters. And it has initially formed the financial industry and agglomeration effect of headquarters economic.

The area belongs to the subtropical monsoon ocean climate. The climate is mild and humid, and it has the characteristics of warm and rainy, sufficient light and heat, small temperature difference and long summer. The region is rich in energy resources, with the most superior water resources and solar energy resources, and has the natural conditions of using river water cooling and solar energy technology. Plants have more than 100 species of tropical, subtropical and warm tropical vegetation. The animals are mainly birds and fish, and there are more than 20 species of birds, including 3 species of national protected birds, 14 species of provincial protected birds; more than 100 species of fish, including mostly the estuarine fish. The fish in water galleries are mainly pure freshwater fish. The location nature and resource advantages have created a good ecological urban environment and a healthy and fashionable cultural atmosphere for the region, laying a foundation for creating a comprehensive area integrating financial, business, high-tech and residential functions.

With the green infrastructure construction as the forerunner, the region carries out special planning and research work on green ecological demonstration city, sponge city, smart city, building quality, urban design and traffic improvement, comprehensively improve the quality of regional construction, and builds the region into the Pilot Free Trade Zone new standard with domestic first-class and international leading grade.

Programme

- Housing
- Offices
- Businesses and services
- Public facilities and infrastructure
- Public spaces
- Green spaces

CO2 Impact

CO2 Impact : 4 538 CO2

Method used to calculate CO2 impact

The calculation method refers to the national standard “Renewable Energy Building Application Engineering Evaluation Standard” GB/T50801-2013, 4.3.8, the carbon dioxide emission factor (kg/kgce) in the standard coal, taking $V_{co2}=2.47\text{kg/kgce}$. In the estimated area, the annual savings of 1837.2 (according to the energy-based planning of the entire starting area), the annual carbon dioxide emission reduction is about $1837.2 \times 2.47 = 4537.88$ tons.

Project progress

- Management phase

Procedure type

- Urban développement permit

Prescriptions and zoning

- Mountain area regulation

Key points

- Governance
- Quality of life
- Economic development
- Mobility
- Resources
- Biodiversity
- Energy /Climate

Approaches used

- Ecodistrict national label

Certifications

- Autre

Data reliability

3rd part certified

TERRITORY

Type of territory

Located in the southernmost of Guangzhou .Nansha New District is the geographical and geometric center of the Pearl River Delta. It is an important hub and comprehensive transportation hub connecting the both banks of the Pearl River Estuary. The Lingshan Island area is part of the pioneering start-up area of the Nansha New Area, located in the Pearl Bay start-up cluster as an important part of Nansha Green Pilot Free Trade Zone. The region is powered by green leadership, with green economy as the main line, green finance as the support, green infrastructure as the guide, green environment as the foundation, attracting global high-end green development elements, and establishing the green brand of Nansha Free Trade Zone. The construction management adopts the organizational model of "Management Committee + Mingzhuwan Office + Platform Company" which is led by the government, operated by market with participation from enterprises. Under the overall

decision and guidance of the management committee, all departments have strengthened division of labor and cooperation, improved the linkage mechanism, and realized the multi-party construction of the government, enterprises and society, and the win-win situation.

KEY FIGURES

Green areas, roofs included

Green areas, roofs included : 1 461 187 m²

Public spaces area

Public spaces area : 2 982 300 m²

Office floor area

Office floor area : 1 521 000 m²

Commercial floor area

Commercial floor area : 309 200 m²

Public facilities floor area

Public facilities floor area : 128 800 m²

Housing floor area

Housing floor area : 1 461 300 m²

Number of residential units

Number of residential units : 2 784

Green spaces /inhabitant

31.63

Public spaces/inhabitant

64.55

Total investment costs (before tax)

Total investment costs (before tax) : 2 465 ¥/m²

GOVERNANCE

Project holder

Name : Development and Construction Office of Mingzhuwan, Guangzhou

Type :

General description :

The Development and Construction Office of Pearl Bay is the department of the Management Committee of Nansha Development Zone. Mainly in charge of: (1) Implement the national strategy of new district and Pilot Free Trade Zone, and the guidelines and policies, organize and promote the construction of Pearl Bay and economical cooperation. (2) Formulate the specific implementation and annual plan for the development and construction of Pearl Bay Area, organize and plan the direction and policies of industrial development. (3) Responsible for formulating the plan and construction of Pearl Bay and annual plan in accordance with the control plan in detail, and organize implementation. (4) Formulate technical standards for the construction of the Pearl Bay Area, organize and promote the development and construction of urban infrastructure and public service facilities, and implement the investment management, quality management and progress management of the construction projects. (5) Responsible for the formulation of the development and construction of the Pearl Bay Area, participate in the constitute of the Pearl Bay District urban development and land use plan, draw up the annual land transfer plan of the Pearl Bay Area. (6) Responsible for promoting economic cooperation and industrial import work in the Pearl Bay Area, organize investment invitation and the establishment of import projects, and putting forward guiding suggestions for the development of modern services such as modern finance, commercial headquarters, scientific and technological innovation.

Project management

Description :

In terms of the overall management of regional projects, the Lingshan Island Area carried out construction work in accordance with the working structure of "Management Committee + Development and Construction Office of Mingzhuwan + Platform Company". The management committee was responsible for overall decision-making and leadership. The Development and Construction Office of Mingzhuwan was responsible for overall coordination and supervision. The land development center would introduce large-scale enterprises and regional state-owned enterprises (Nansha Urban Construction & Investment Co., LTD) to develop the area by public bidding. The large-scale bid-winning enterprise and Nansha City

Investment jointly established Guangzhou Nansha Pearl Bay District Development. (project platform company) to organize and implement various development and construction work within the scope of cooperation; The successful bid-winning cooperative enterprise independently undertook the financing and financing guarantee responsibility of the project. As the general contractor of the project implementation, the enterprise undertook the implementation of the physical project, and at the same time required it to use its own industrial resources to introduce relevant high-end industrial projects in the project, and strived to achieve rapid integration of the production city.

Project stakeholders

Guangzhou Nansha Mingzhuwan District Development Limited Company

Function : Developer

It is mainly responsible for the first-class land development of Lingshan Island Area in the starting area of Nansha Mingzhu Bay. It includes Lingshan Island Municipal Road Project, Nansha Pearl Bay Development Exhibition Center Project, Lingshan Island Super Dike and Waterfront Landscape Belt Project.

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China Academy of Building Research

Function : Technical consultancy agency

It mainly includes the preparation of green ecological demonstration urban areas, special plans for the construction of sponge cities, indicator systems and partial implementation of construction plans to protect the ecological environment of Lingshan Island Area. As a policy think tank, it provides an all-round cooperation model with government agencies in green eco-city, sponge city, and sustainable development, and provides consulting services.

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QUALITY OF LIFE

Quality of life / density

The region fully promoted transportation planning, and achieved the goal of "10, 30, 60" for the integration of external roads, that is, to achieve high speed in 10 minutes in the region, 30 minutes to reach the main area in the new district and the main regional passenger

transportation hub ;within 60 minutes reach the central city of Guangzhou and the main airports of the surrounding cities. Established the rail transit as the main body, the conventional public transport as the support, and the new traffic as the characteristic to compensate the multi-mode integrated public transportation system, and as a result realized the bus sharing rate of 45-50% during peak hours.

With the goal of building an international comprehensive community of life, production and ecology, the district had 7 educational facilities, 3 medical and health facilities, 6 cultural and sports facilities, 1 business service facility and 13 community service facilities. Fully considered the functions of business service industry, financial service industry, futures trading center, regional enterprise headquarters, industrial technology service, small exhibition, cultural center, education and training. The composite function would bring vitality to life and create an open livable space for waterfront.

Net density

-0

Culture and heritage

Before any construction in the area is carried out, the construction plan will be submitted to the Municipal Cultural Relics Bureau. The Municipal Cultural Relics Bureau will organize the archaeological excavation units to carry out archaeological investigations and exploration in places where the cultural relics may be buried within the scope of the project; In case of important discoveries, The Municipal Cultural Relics Bureau shall promptly report them to the administrative department of cultural relics under the state council for disposal.

The region adheres to the spirit of open, inclusive and pragmatic Lingnan culture, absorbs the concept of modern urban construction, and creates Lingnan Water City, which combines modern civilization with traditional culture. The traditional practice of adapting to the geographical and climatic characteristics of Lingnan is to create a water town community that is rich in Lingnan characteristics. Combined with the characteristics of the local Pearl River estuary, the region introduced the dutch advanced ecological levee construction concept, built super levees with flood control and regional characteristics, generated with recreational facilities to build a modern coas of Lingnan characteristic.

Social diversity

The district optimizes commercial service facilities to create a comprehensive and functional commercial community, providing a convenient living circle for community residents. In the planning community, small supermarkets, bookstores, pharmacies, restaurants and other commercial service facilities in a residential community are set up to meet the daily needs of residents. Setting up community commercial centers and convenience service terminal facilities, and community public activity centers to provide diverse services for community residents.

It strengthens regional medical and health facilities services, undertakes the "urban-community" two-level service, and provides community-based medical service centers and disability rehabilitation centers on the basis of the construction of urban-level medical facilities to provide community residents with common diseases and frequently-occurring diseases services and technical services such as health education, prevention, health care, and rehabilitation. It also sets up elderly service centers and elderly service stations to provide catering, entertainment, fitness, health care and other services for the elderly.

Social inclusion and safety

The region vigorously promotes the development of education, introduces advanced educational concepts, domestic first-class teaching implementation equipment, and first-class teachers, and builds world-class schools through first-class management. There are 1 key senior high school for planning and construction, 1 junior high school, 3 primary schools and 4 kindergartens. At the same time, we plan a comprehensive cultural center and plan two activity stations to extract regional educational diversity.

The region attaches great importance to the construction of public safety systems, continuously strengthens joint law enforcement, carries out in-depth special management of key industry sectors, initially establishes an emergency platform safety production, improves the security inspection business management system, and continuously improves regional security management and governance capabilities.

The region attaches great importance to urban disaster prevention and mitigation work. Starting from identifying the typical disaster characteristics of cities, the public coverage rate of early warning information for planning meteorological disasters in the near future is over 90%, and the long-term is over 95%. Using the combination of dikes and roads, the standard of the flood control is the super levee once in 200 years to protect against flood surges.

Ambient air quality and health

The regional air quality is superior. According to the latest information released by the government department website in August 2017, the air quality of the whole district is better than that of the same period of last year. In August, the proportion of environmental air quality compliance in Nansha New District was 83.9%, an increase of 9.7% over the same period of last year. The region takes the financial industry as the core, with developing the headquarters economy and no industrial pollution source in it, and the regional air quality is fundamentally guaranteed. Implement the most stringent ecological environmental protection policies in the construction process. In terms of air quality, strengthen regional air environmental quality monitoring, take effective measures to reduce pollution; strengthen construction dust control, strictly follow the guidelines of "encirclement, washing, sprinkling, hard, green, and cover" to supervise the construction site; strengthen domestic waste gas and the management of automobile exhausts to increase the degree of urban greening and create a new green city. In the prevention and control of noise pollution, noise-absorbing and noise-reducing roads, green belts on roads come into use. The traffic vehicle management is also strengthened. The region controls the noise through the installation of sound insulation

barriers and sound insulation windows at sensitive points in environmental functional areas.

SOLUTIONS

Description :

ECONOMIC DEVELOPMENT

Local development

The region aims to build the world-oriented Pearl River Bay Area Central Business District with service for Pearl River Delta. It focuses on the development of shipping finance, wealth management, financial leasing, headquarters economy, professional services, and technological innovation. The regional plan for the investment introduction and joint meeting system was formulated, and the investment promotion team of "Government + District State-Owned Enterprise + Platform Company" was formed to carry out the investment promotion work. At present, the region has introduced several financial industries and headquarters economic projects. In accordance with the idea of "promoting the city with honesty, promoting the city with port, and promoting the city with production", the region will comprehensively promote investment introduction and establish a financial agglomeration area and a headquarters economic zone.

% of public spaces

86

% of office area

44

% of commercial area

9

Circular economy

In the process of developing headquarters economy and financial industry agglomeration, the region actively explores the sustainable development model of "green ecology, energy conservation with low carbon". On the one hand, regional project construction fully implements the requirements of ecological indicators to achieve a good operating model of energy conservation, low carbon, environmental protection and ecology; on the other hand, we are fully committed to the development of circular economy and the introduction of high-

end financial industry. At present, it has introduced industries including CCCC Urban Investment Holding Company Limited, CCCC Industrial Investment Holding Co.,Ltd., CCCC Financial Leasing Co., Ltd., Provincial Transportation Group, Poly Real Estate, Yuexiu Group (the Finance sector) and Shenzhen Zhongjin Lingnan Nonfemet Company Limited, which have initially formed the financial industry and headquarters economic agglomeration effect. The region will continue to take the circular economy of sustainable development as the criterion, and increase efforts to promote the high-end headquarters economic projects based on finance, and maximize the value of the regional headquarters economic demonstration zone.

TRANSPORT

Mobility strategy

The integration plan of regional green transportation aims at the pursuit of accessibility, quality of life and sustainable development. By constructing urban rail transit, intelligent conventional public transportation, new characteristic traffic (railcars, water transportation, new energy transportation, mobike), and three-dimensional interactive traffic on the ground and underground, a world-class high-quality transportation system with regional characteristics will be built. The region has built parking systems from near-term and long-term phases. The recent construction is based on regional parking demand. With the aim of regulating regional traffic demand, intelligent parking guidance is used as a means to closely integrate regional public transportation system construction to achieve initial mitigation of the gaps and contradictions between parking supply and demand in the region. The long-term construction takes the parking development strategy as the outline, conducts regular parking research, continuously improves the parking policy, and comprehensively builds the parking facilities and management system of “balanced supply and demand, intelligent guidance, intensive sharing, green ecology, diversified operation, and orderly development.”

SOLUTIONS

Description :

SMART CITY

Smart City strategy

The regional smart city builds a three-tier structure with data as the core, realizes the accumulation of data resources, the application and expansion of value, and guides the

construction of regional smart cities for a long time. Information Infrastructure Layer: To create a next-generation information infrastructure system of “broadband, convergence, security, and ubiquity”, and coordinate the deployment of regional information infrastructure to achieve automated data collection and efficient transmission. Information Platform Layer: Create a regional city data collection, integration, analysis and visualized display platform to realize data value mining. Urban Application Layer: Promote the intelligent construction of urban construction, management and operation, improve the operational efficiency and refined management level of the city, realize the effective use of data value; Use the power of enterprises to create a more livable living environment for residents to enhance their life experience, create a better production environment for the industry, boost industry upgrades, and expand the value of data. At present, a number of pilot projects for the construction of special smart systems have been launched, including four pilot projects, including smart buildings, smart street lights, smart driving, and smart streetscapes, with good operational results. At the same time, the construction of regional engineering project management system was carried out. The project responsibility supervision and approval management was realized based on the government's responsibility power system. The whole life cycle supervision was carried out for regional engineering construction, and all kinds of written materials and infrastructure data formed during the construction process were accumulated. In the future, we will gradually realize the intelligent construction in the fields of energy, environment, transportation, communication, and urban security, and form the prototype of a regional smart city.

RESOURCES

Water management

The region implemented a water conservation plan from the comprehensive measures from engineering, technology and management, such as improving water conservation awareness, improving management level, improving water use efficiency, improving industrial level, and improving scientific and technological content. At the same time, it established institutional thresholds and reward mechanisms, and actively introduced recycling water modes such as circular economy, environmental protection equipment and energy-saving materials, and played a leading role in guiding urban water use.

The region made a management demonstration zone for water supply. which has become a model for smart water and water management in the city. Guided by comprehensive utilization of water resources, it has built a demonstration zone for quality water supply and improved the quality of domestic water. Strictly controlled the design and construction of the pipe network, improved the construction quality of pipe network, established a modern pipeline leakage monitoring system, and formed an active prevention and control mechanism. Combined with the construction of the reclaimed water plant in the sewage plant, the sewage after deep treatment would be treated to the regional reclaimed water, so that the regional water use efficiency could be improved.

Soil management

The current land use in the region is mostly cultivated areas such as seedlings and fish ponds. The soil has problems such as poor texture, poor aeration, organic matter and low potassium content. The regional greening landscape project requires a large amount of planting soil. The region organized soil improvement techniques, improved soil aeration, and increased total potassium and organic matter content to meet secondary planting soil standards and achieved the reuse of soil resources.

The region developed high-quality wetland ecosystem research, hard revetment ecological cultivation, and the application of sponge technology for rain flood parks and other measures to protect regional wetland ecosystems. At the same time, the implementation plan of sludge reuse was carried out to improve the sludge and realize the harmless treatment of the waste.

Waste management

The area is equipped with a domestic garbage collection point. The service radius is no more than 70 meters. After the garbage was collected at the site, it was transported to the garbage transfer station via a compressed garbage collection vehicle. The flammable part of the domestic garbage was treated, and the garbage that was not suitable for recycling and non-combustible would be sent to the landfill for sanitary landfill. The utilization rate of regional domestic garbage has reached over 50%.

The district formulated a construction waste recycling program, established a recycling treatment center for construction waste. In the treatment center the waste would be crushed, classified, processed, and produced non-load-bearing auxiliary concrete prefabricated components such as recycled bricks, light bricks, and square piles, which were used for temporary projects of the project. And the recycling rate of construction waste would be more than 80%.

BIODIVERSITY

Biodiversity and natural areas

The area carried out the cultivation of hard revetment ecosystems, used plants to create natural landscapes of the outer river embankments, and built ecological embankments with free growth ability and beautiful landscapes. It created a natural ecosystem with “grass budding with kites flying, trees green and birds singing”, for making living spaces and ensuring biodiversity.

Aiming at providing technical support for regional high-quality water ecological construction, the area made research on the construction of high-quality wetland ecosystems in the region,

monitored the water ecology of the outer rivers, early warns for water deterioration, algae outbreaks, and foreign river biological invasions, and provided feasible technical solutions for improving water transparency, river and lake self-purification capacity management.

ENERGY/CLIMATE

Climate adaptation, resources conservation, GHG emissions

The regional construction absorbed the traditional Lingnan architectural features, with the principle of “windy, green, transparent, permeable” as the planning space layout principle. The green building technologies such as shading and energy consumption monitoring were applied during the implementation process to provide users with health, comfort, also work and living space that is in harmony with nature.

In the process of regional construction, the amount of silt spoil was about 500,000 m³. In order to optimize the resource consumption, the implementation plan of large-scale utilization of silt resources was carried out to reduce the moisture content of the silt and to improve the soil quality for roadbed filling or greening.

The promotion of green building materials in the region requires that the proportion of new wall materials used in building construction should reach 98%, the proportion of green building materials used in new buildings should reach 50%, and the proportion of applications in pilot demonstration projects should reach 80%.

Focusing on energy conservation and emission reduction, the region has built a resource-saving production mode, to improve the incentive and restraint system, enhance the capacity for sustainable development. It achieved the goal of reduced energy consumption per unit of GDP by 16% and reduced carbon dioxide emissions by 17%.

Energy sobriety

The region formulated energy plans and built regional energy stations to achieve recycling and cascade utilization of resources in accordance with the principles of “reduction, reuse, and resource utilization”. The use of renewable energy technologies such as river water, solar thermal and solar photovoltaic optimized energy consumption, and established an efficient, environmentally protective and environmentally friendly green energy system. It scientifically and rationally allocated energy system plans, comprehensively considered project investment costs, applied new technologies and new methods to energy consumption, energy transmission, production capacity and comprehensive utilization to improve system energy efficiency and operational economy.

The region requires for: The implementation rate of new buildings' energy efficiency standard reaches 100%, comprehensive implementation of residential buildings' energy-saving reaches 50%, public buildings' energy-saving reaches 65% of design standards. While all the

new buildings are required to be green buildings in the region, more than 82% of them must be high-star green buildings, so that the implementation rate of energy-saving standards can be guaranteed. As a conclusion was the energy saving ratio of public buildings obviously improved, which made an important contribution to the overall building energy conservation and consumption reduction.

Energy mix

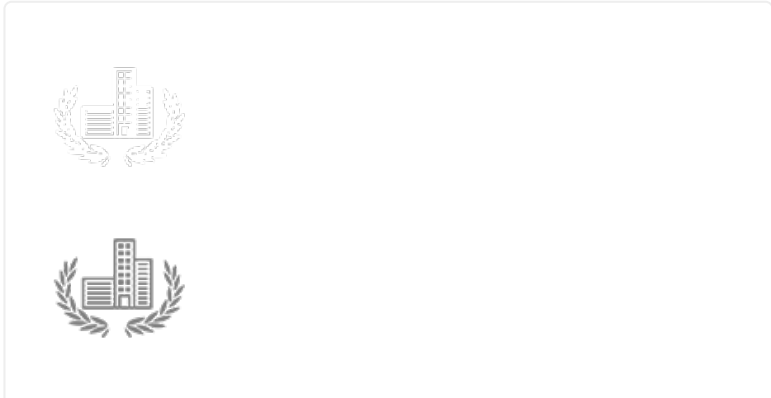
The regional municipal resources are abundant, and two substations were planned to be built for regional power supply. Regional gas resources are supplied by means of gate stations - regulating stations with high and medium pressure - systems with medium voltage - users. The district has a water purification station to provide high-quality water sources and a sewage treatment station to achieve zero sewage discharge. The renewable energy sources that can be used in the region are mainly solar energy, river water source, air energy, etc. The applicable forms mainly include: solar heating water, solar photovoltaic, air source heat pump and water source heat pump. In the process of regional development, we encourage the development of solar thermal energy utilization in residential buildings, rationally allocation of solar energy scale according to the demand of domestic hot water, use of light and heat energy storage equipment or the increasing utilization rate of solar thermal equipment. We also encourage suitable buildings and the application of air source heat pump technology for domestic hot water supply. We encourage the application of solar photovoltaic technology and demonstrate solar photovoltaic applications. Regional planning and construction of energy stations, planning and application of water source heat pump technology have been used to achieve cascade utilization of multiple energy coupling.

Total electricity needs of the project area /year

Total electricity needs of the project area /year : 234 390,00 kWh

Contest

Building candidate in the category





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