

International Mayors' Forum on  
SUSTAINABLE URBAN DEVELOPMENT

探索绿色地产之路  
Towards Green Real Estate Development

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China Merchants Property Development Co., Ltd.  
15 November 2007

China Merchants, headquartered in Hong Kong, was founded in 1872, has over 130 years of history and has been regarded as the "epitome of the century-long history of China's national enterprises."



In 1979, China Merchants developed the 11 square kilometer Shekou Industrial Zone, China's first industrial park open to the world. Established in 1984, China Merchants Property Development is one of the core business sectors of China Merchants Group.

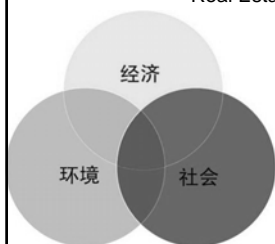
上世纪80年代，袁庚提出，“将蛇口建设成最适合人类生活的地方”

In the 1980's, Mr Yuan Geng, the founder of China Merchants Shekou Industrial Zone, initiated the concept "to make Shekou the most suitable place for people to living in"



绿色地产  
—符合可持续发展理念的房地产活动。

Green Development  
Sustainable Concept and Practices for Real Estate.



招商人的绿色地产

"Green Development" Concept by the China Merchants is a pursuit of sustainable development that integrates ecology, economy and the society.

家在·情在

Home is where the heart is

园区开发商

Business Park Developer

绿色地产商

Green Estates Developer



## 大纲

- 和谐社区开发模式—社区综合开发
- 绿色开发策略—适用、经济、美观
- 国际化人文氛围—视野、社区、合作

## Contents

- Harmonious community development model—Integrated community development
- Green Development Strategy—applicable/practical, economical, beautiful
- International cultural atmosphere —vision, community and collaboration

## 和谐社区开发模式—社区综合开发

Harmonious community development model—Integrated community development

## 招商地产之“园区开发商”

CMPD as Business Park Developer

以产业、居住互动为核心的 社区综合开发模式

Integrated community development model with the interaction between industry and residence as its emphasis



## 社区综合开发的定义

## Definition of Integrated Community Development

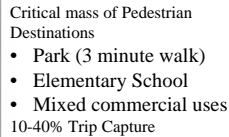
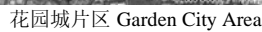
- 在房地产开发过程中，以整个生活社区为项目单元，对其中的各个功能组团（包括住宅区、商业区、交通体系、总体绿化、园林建设及景观体系、教育设施、信息化网络体系和其他生活服务设施等）进行综合规划并同步实施建设。
- Take the community as a whole during real estate development, and integrate the different functional elements of the community during planning and development, including: residential areas, industrial areas, business and office areas, entertainment and leisure areas, etc.

## 社区综合开发—蛇口的部份知名企业

Some of the Famous Corporations in Shekou



蛇口片区物业分区图 Distribution of properties in Shekou

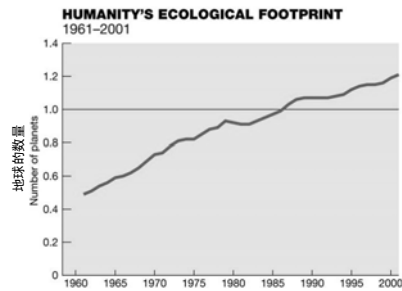


- 1) Strengthen and encourage growth in existing communities.
- 2) Foster "walkable", close-knit neighborhoods.
- 3) Take advantage of existing community assets.
- 4) Preserve open space, farmland, natural beauty, and critical environmental areas.
- 5) Provide a variety of transportation choices.

- 6) Mix land use
- 7) Create a range of housing opportunities and choices.
- 8) Promote distinctive, attractive communities.
- 9) Make development decisions predictable, fair, and cost-effective.
- 10) Encourage citizen and stakeholder participation in development decisions.

## 生态足迹 – 全球生物容量对消耗量

## Ecological Footprint – Global Biocapacity vs. Consumption



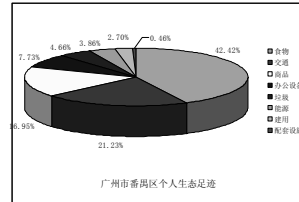
资料来源: WWF“我们生存的星球2002年报告”  
Source: WWF Living Planet Report 2002

## 金山生态足迹研究

## Ecological Footprint Study in Jishan, Panyu Guangzhou

- 番禺区的人均生态足迹是4.1公顷/人, 相当于2.2个地球的生活方式。

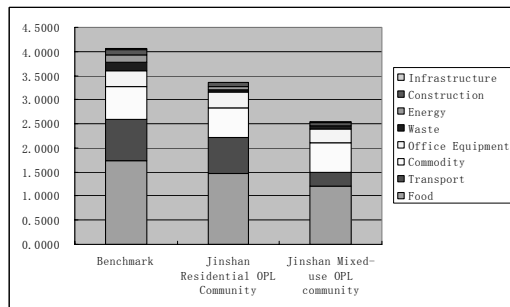
- The per capita EF in Panyu is 4.1 hectares, equal to 2.2 planets



Component	EF	%
Food	1.7249	42.42
Transport	0.8632	21.23
Commodity	0.6893	16.95
Office	0.3141	7.73
Waste	0.1893	4.66
Energy	0.1570	3.86
Construction	0.1096	2.70
Infrastructure	0.0185	0.46
Total	4.0659	100.00

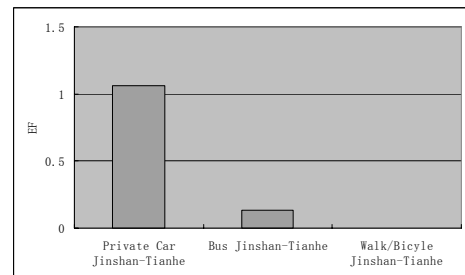
## 金山不同社区开发模式的生态足迹比较

## EF for different development model in Jinshan



## 金山不同交通方式的生态足迹比较

## EF for different transport pattern in Jinshan



## 绿色开发策略—适用、经济、美观

## Green development strategy – applicable/practical, economical, beautiful

## 招商地产之“绿色地产商”

- 保护生态环境, 提高生活品质, 降低资源消耗, 降低污染排放;
- 绿色理念与实践贯穿于项目开发全过程。

## CMPD as Green Estates Developer

- Protect the environment, increase living quality, reduce resource consumption, reduce polluting emissions.
- Green development concept was practiced through out the whole development process.



### 泰格公寓

- 服务性公寓
- 土地面积
- 建筑面积
- 共7栋楼（A-G），分别为4，6，25层；
- 232户
- 绿化率45.8%

### Taige apartment

- Service apartment
- Land area:17,300m<sup>2</sup>
- Building area:43,000m<sup>2</sup>
- 7 buildings in total, named A-G respectively, 4/6/25floor
- 232 units in total
- Fraction of building coverage:26.47%
- Fraction of vegetation coverage:45.8%



### Geographic position

深圳及周邊相關交通示意圖:



### 节能优化设计

- 室外环境优化设计
- 建筑围护结构优化设计
- 能源系统优化设计

### Optimize Energy Performance

- Exterior environment design
- Building Envelop thermal performance
- Energy system



### 整体优化 Integration optimization

气流分析  
Air flow analysis

热工性能分析  
Thermal performance analysis

热岛效应分析  
Heat islands analysis

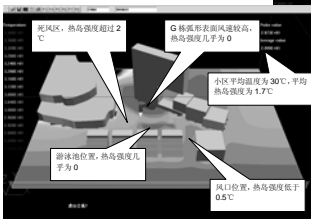
建筑热工性能解决方案  
Building Thermal performance solution

Energy system  
LCC method

能源系统方案  
Energy system solution

### 室外热岛强度分析

- 室外热岛强度降低1℃可减少制冷能耗3%。



### Heat islands analysis

- Reduce heat islands by 1℃ can cause the energy consumption for cooling to reduce by 3%.

### 遮阳设计 Shading design



- 能源系统
  - LCC手段
  - 具体措施:

- 高效制冷机, COP=5.6, 采用环保制冷剂134a, 分户计量冷量
- 空气源热泵户用热水器
- 照明控制系统, 节能灯/感应灯/光电灯
- 节能电梯

- Energy system
  - LCC method
  - Measures:
    - High efficient refrigerator, COP=5.6, adopted environment friendly refrigerant 134a, cooling metering for reach unit/cooled water pump frequency conversion
    - Air source heat pump domestic water heater
    - Lighting control system, energy-saving lamp/sense light/Photovoltaic lighting system
    - Energy saving elevator



### 优化设计效果

Effect of thermal performance optimization  
—compared with typical scenario

Item	Typical scenario	Taige apartment
COP of central HVAC system	2.8~3.5	3.77
Installed electric power for HVAC system	For typical unitary air conditioner:40~70w/m <sup>2</sup>	24.4w/m <sup>2</sup>
Installed electric power for lighting	Limit for energy efficient building in China:6w/ m <sup>2</sup>	4.23w/m <sup>2</sup>
Electricity consumption for domestic water heating	Electric heater: 37kwh/ton	11.3kwh/ton

### 泰格公寓设计节能率

Predicted energy cost reduction for cooling and heating at design stage

—Evaluated according to local design standard for building energy efficiency(JGJ75-2003).

Item	A~D	E	F	G
Cooling Area (square meter)	5778.5	2424.8	4817.1	21926.4
Energy Saving	37.2 %	59.5 %	61.9 %	71.6 %
<b>Weighted Average Value</b>	<b>63.7 %</b>			

### 节水 Water efficiency

- Waste water reuse for lavatory flush and landscape
- Water saving sanitary installation
- Urinal without water use in public toilet
- Local vegetation
- Roof vegetation without irrigating
- Wet land system



### 节材

- 高强度预应力混凝土梁
- 钢结构和就地取材可再生材料,
- 竹地面和藤家具;



### Materials and resources

- High-intensity and pre-stress concrete beam
- Steel structure and local materials
- Renewable materials, bamboo floor board and rattan furniture

### 健康环保

- 新风系统
- 可变频风管
- 铜水管
- 环保材料 全装修
- 原始植被的保护
- 施工中的水管理
- 等等

### Healthy and environmental protection

- Fresh air system
- Pressure variable air duct
- Copper water pipe
- Environment friendly materials
- Whole fitment
- Protection of original vegetation
- Waste management during construction
- Etc.

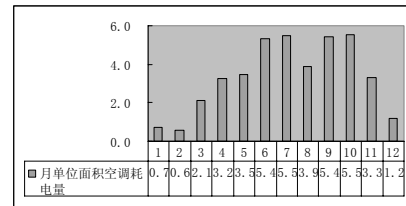


LEED 认证—2005银奖

LEED-NC SILVER 2005

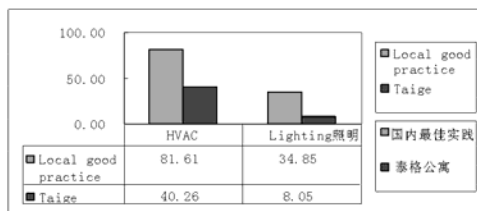


- G和F建筑暖通空调系统一年耗电量—40.26kWh/m<sup>2</sup>
- HVAC system electricity consumption in one year for building G and F—40.26kWh/m<sup>2</sup>

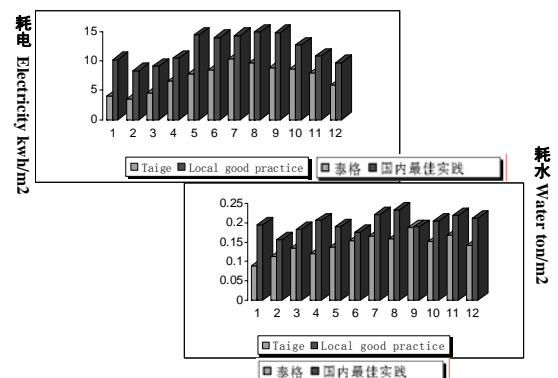


每月单位面积空调耗电 (Kwh/m<sup>2</sup>)  
Monthly electricity consumption per square meter (Kwh/m<sup>2</sup>)

泰格公寓和同一地区优秀实践暖通空调和照明系统的耗电量  
HVAC and lighting electricity consumption of Taige and local good practice (kwh/m<sup>2</sup>/yr)

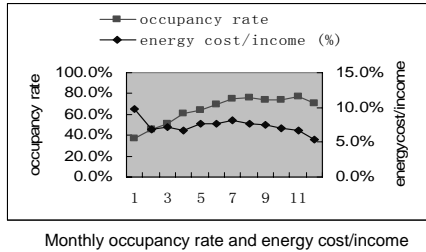


月耗电量与同一地区优秀实践的对比  
Monthly electricity and water cost with local good practice



### Energy cost/income

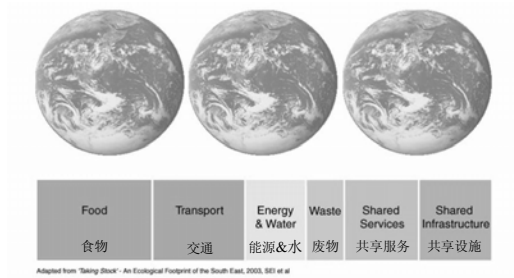
- Local good practice is above 8%.



国际化人文氛围—视野、  
社区、合作

International cultural atmosphere  
- vision, community and  
collaboration

### 欧洲“三个地球生活”带来的挑战 Europe's three planet challenge



“一个地球生活” (OPL) 是由  
BioRegional 和 世界自然基金会  
联合发起的项目  
A joint initiative by BioRegional and WWF

BioRegional  
www.bioregional.com



### “一个地球生活”原则 One Planet Living Principles

1. 零碳 Zero Carbon	6. 可持续发展用水 Sustainable water
2. 零废物 Zero Waste	7. 保护自然生态环境和野生动植物 Natural habitats and wildlife
3. 可持续发展交通 Sustainable Transport	8. 传承文化 Culture and heritage
4. 当地和可持续发展材料 Local and sustainable materials	9. 公正与公平贸易 Equity and fair trade
5. 当地和可持续发展食品 Local and sustainable food	10. 健康和愉快的生活 Health and happiness

### “一个地球生活”与金山 One Planet Living and Jishan





## 制定可持续行动计划

### Development of Sustainability Action Plan (SAP)



## 可持续行动计划范例 Sample of SAP

原则名称 Principle Name	
对共同国际目标的响应	
国家基准	
OPL 项目关键执行指标 (KPIs) 和达到 OPL 2020 年目标的时间表	(如果可能的话做摘要总结和/或插入分开的表格如果之后获得详细资料)
主要策略	
设计阶段	
建设阶段	
创造工作机会	
市场、营销、沟通交流机会	
长期物业管理	
政策问题	
更广泛的社区和市政结合/合作	
关键障碍	
关键合作伙伴	
交叉主题	

## 招商地产与 Bioregional 签署战略合作协议 Letter of Intent for Strategic Collaboration Between BioRegional and China Merchants



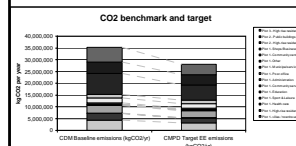
## 零碳研究 Zero Carbon Study



碳减排目标  
番禺资源调查

- 生物质能
- 生物气 (沼气)
- 垃圾填埋气
- 垃圾焚烧发电
- 风力发电

确定可再生能源开发策略  
碳融资补充 (CDM 交易)



Carbon Target  
Panyu Resource Study

- Biomass
- Biogas
- Landfill Gas
- Waste-to-energy
- Wind

Evaluation of renewable energy development opportunities  
More on Carbon Finance



**THANKS!**

更多的笑容, 更和谐的家  
亲近, 是我们沟通的语言  
家在情在 招商地产