

让我们这一代每个人体验绿色建筑

**GREEN BUILDINGS
FOR EVERYONE
WITHIN
THIS GENERATION**



Eco-City Policy and Development in the U.S.

美国生态城市有关政策与发展趋势



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TOP REASONS FOR GREEN WORK

绿色建筑的首要原因

Customer demand
客户需求

Market demand
市场需求

Lower operating costs
降低运营成本

Branding advantage
品牌优势

NEW BUILDINGS
新建建筑

Median operating cost savings
节约运营成本

8%-15%

Increased building values
提升建筑物的价值

5%-7%

RETROFITS
既有建筑改造

Median operating cost savings
节约运营成本

9%-13%

**ENERGY
USE**

能耗

24%* -50%**

**CO₂
EMISSIONS**

碳排放

33%*** -39%**

**WATER
USE**

水耗

40%**

**SOLID
WASTE**

固体废弃物

70%**

绿色建筑可以减少

Green Buildings Can Reduce...

* Turner, C. & Frankel, M. (2008). Energy performance of LEED for New Construction buildings: Final report.

** Kats, G. (2003). The Costs and Financial Benefits of Green Building: A Report to California's Sustainable Building Task Force.

*** GSA Public Buildings Service (2008). Assessing green building performance: A post occupancy evaluation of 12 GSA buildings.



GREEN BUILDING
= WELL-BEING



The background of the entire graphic is a blue-tinted photograph of a busy city street with pedestrians and buildings.

绿色建筑 = 健康福祉



We must **engage**
我们必须携手各方人士



New Ideas and Examples of Eco-Cities

生态城市的新思路及案例

How Do We Get There? 我们如何实现？

1. Technologies 技术
2. Policies 政策法规



How Do We Get There?

如何达成目标

ADVANCED TECHNOLOGIES 先进技术

- | | |
|----------------------------------|-----------|
| -SOPHISTICATED SENSORS, CONTROLS | 精密传感器和控制器 |
| -ENERGY MANAGEMENT SYSTEMS | 能源管理系统 |
| -ADVANCED WINDOWS AND INSULATION | 先进门窗和保温材料 |
| -SOLID STATE LIGHTING | 固态照明 |
| -BUILDING INTEGRATED PV | 建筑一体化光伏 |

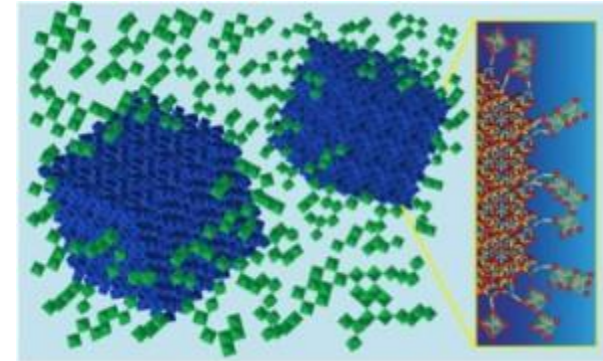
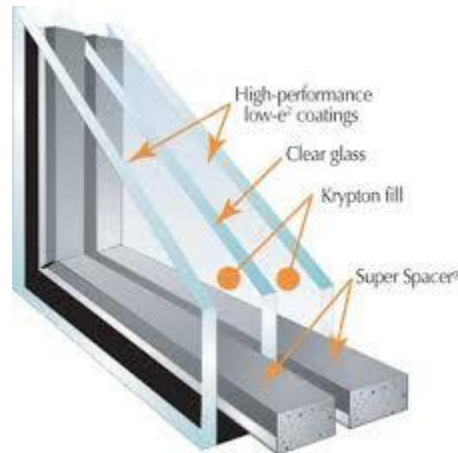
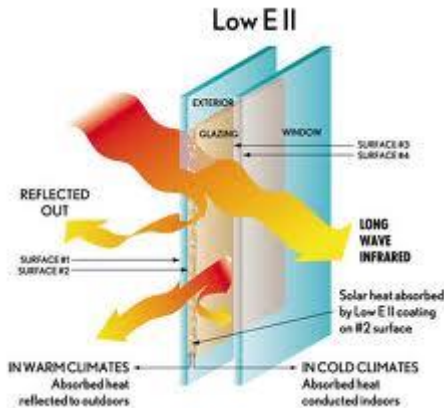


Advanced sensors, controls, and whole building energy management systems

高级传感器、控制器、和建筑整体能源管理系统



Sophisticated Windows 先进的外窗系统



Nanocrystals of indium tin oxide (shown here in blue) embedded in a glassy matrix of niobium oxide (green) form a composite material that can switch between NIR-transmitting and NIR-blocking states with a small jolt of electricity. A synergistic interaction in the region where glassy matrix meets nanocrystal increases the potency of the electrochromic effect.

纳米晶体能提高电致变色作用的潜能。

Nano Insulation 纳米保温材料

New generation of polymer aerogel has strength, flexibility, durability and light weight

新一代聚合物气凝胶具有强度高、柔韧、耐久和重量轻的特点。



Advanced Lighting 高性能照明



Building Integrated PV 建筑一体化光伏



Solar on DOE's Roof

美国部屋能源顶上的太阳能





How Do We Get There? 如何达成目标

POLICY 政策

- Guidelines 指导方针
- San Francisco Example
旧金山案例
- ISO and LEED

发展目标 “零能耗建筑”

Moving Toward “Zero Energy Buildings”

- 高效能的建筑，这些建筑生产自身所需的能源——他们使用的能源量不超过他们所能生产的能源量
- 50-70%的效率+ 现场或购买的绿色能源（占30-50%）=100%
- 一体化建筑系统整合 + 最好的建筑材料+远见+设计 =
零能耗建筑..... 在我们有生之年能够实现！
- Buildings that are energy efficient, and produce their own energy—over the course of the year, they don't use more energy than they produce
- Efficiencies of 50-70% *plus* on-site or purchased green power 30-50% = 100%
- Whole Buildings Systems Integration + Best Components + Vision + Design =
Zero Energy Buildings ... in our lifetime!

引领至零能耗社区和城市可持续发展的概念

Leading to The Concept of Zero Energy Communities and Sustainable Cities

“万物皆资源.....无物无一用。”

***“Everything is a
resource...nothing is waste.”***

1. 整合能源技术

城市废物也是资源 → 生物燃料和电力

作为发电厂的建筑 → 太阳能、地热

1. Integrating Energy Technologies

Municipal waste is a resource →
Biofuels and Power

Buildings as Power Plants →
Solar, Geothermal

2. 应用先进的技术

零能耗建筑

工业过程

2. Applying Advanced Technologies

Zero Energy Buildings

Industrial processes

Cities of the Future

未来的城市

Cities of the Future
Will be successful...only
if they are GREEN

城市的未来
能否成功...取决于是否环保

Cities of the Future

未来的城市

经济开发保证今天的利益

Economic Development
is a guarantee for today...

先进技术保证明天的利益

Advanced Technologies
are a guarantee for
tomorrow....

绿色经济与生态城市保证
永久的利益

The Green Economy and
Eco-Cities are a
guarantee forever

Eco-City Guidelines

生态城市指导方针

1. 为城市和邻近地区建立全面的能源计划
2. 设计紧凑而混合功能的社区，配置步行道、自行车道、公园、学校、和商店。
3. 推行高水准的建筑标准
4. 可再生能源使用目标**100%**
5. 推行清洁而高效的公共交通
6. 利用“产业共生”
7. 包括水、废水、和固体废弃物
8. 确立有效的运营和过程持续提高机制

Eco-City Guidelines

1. **Develop a Comprehensive Energy Plan for the City and Surrounding Area**
2. **Design compact, mixed use communities with walkways, bikepaths, parks, schools and stores**
3. **Require aggressive building standards**
4. **Set a renewable energy goal of 100%**
5. **Require clean and efficient public transportation**
6. **Utilize “industrial symbiosis”**
7. **Include water, waste water and solid waste**
8. **Establish effective operations and continuous Process Improvement**



LEED
v4

NEW CONSTRUCTION
新建建筑

NEIGHBORHOOD DEVELOPMENT
社区

COMMERCIAL INTERIORS
商业室内

HOMES
住宅

**EXISTING BUILDINGS
OPERATIONS + MAINTENANCE**
既有建筑

HEALTHCARE
健康保健

CORE + SHELL DEVELOPMENT
核心与外壳

RETAIL
零售

SCHOOLS
学校



LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

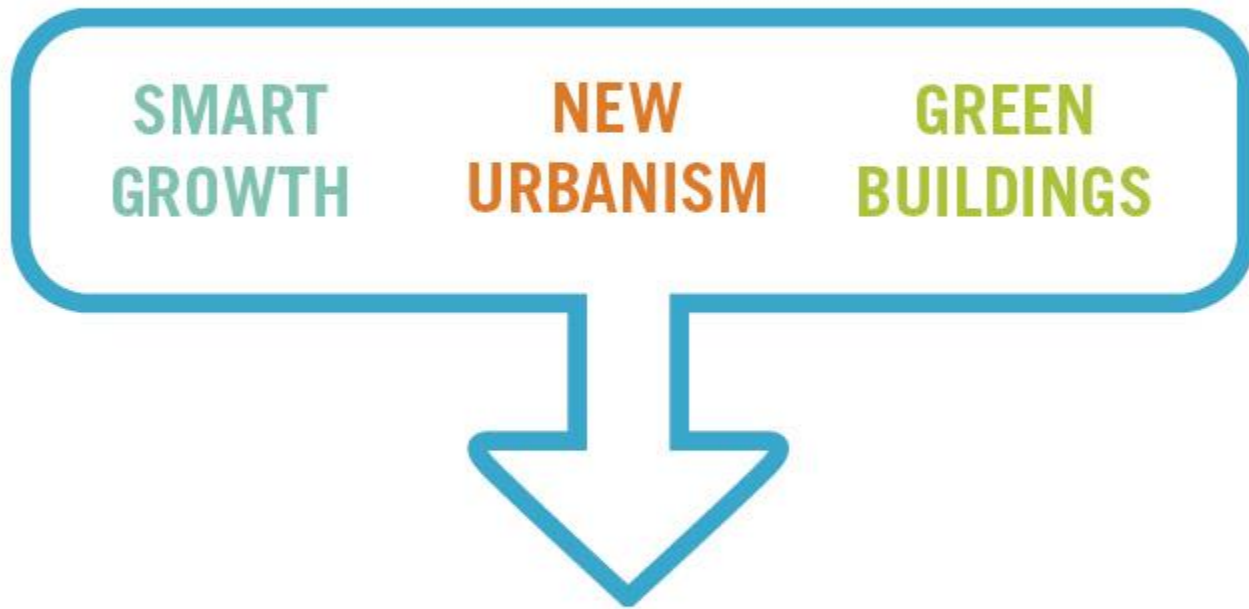


**LEED FOR
NEIGHBORHOOD
DEVELOPMENT**

**LEED
社区开发**

What LEED-ND Is:

精明增长 新城镇主义 绿色建筑



IMPROVED QUALITY OF LIFE

提高生活品质

The Benefits: **Triple Bottom Line**

更强健的经济 更干净的环境 更强健的经济

HEALTHIER
communities

CLEANER
environment

STRONGER
economy

LEED-ND 的优势

**The Benefits of
LEED-ND**

Credit Categories

LEED® for Neighborhood Development

Total Possible Points 110***



Smart Location & Linkage

27



Neighborhood Pattern & Design

44



Green Infrastructure & Buildings

29

** Out of a possible 100 points + 10 bonus points*

*** Certified 40+ points, Silver 50+ points,
Gold 60+ points, Platinum 80+ points*



Innovation & Design Process

6



Regional Priority Credit

4

LEED 社区开发

精明选址和连接性

邻里形态和设计

绿色设施和建筑

创新与设计过程

地域优先得分点



ISO 50001 Energy Management

能源管理

- **Develop a policy for more efficient use of energy**
为能源的更高效使用订立政策法规
 - **Fix targets and objectives to meet the policy**
为满足政策法规要求确定目标
 - **Use data to better understand and make decisions about energy use**
利用数据更好掌握能耗情况并据此作出对策
 - **Measure the results** 对结果进行测量评估
 - **Review how well the policy works, and** 考量政策法规的执行情况
 - **Continually improve energy management.** 持续提高能源管理
-
- *Join Companies like Bentley Cars and Schneider Electric*
 - *to save money, conserve resources and tackle climate change.*

Where we
learn matters!

我们从哪得到教益



THE CENTER
FOR GREEN SCHOOLS



绿色学校中心

Search The Green Building Information Gateway

ALL



ACTIVITIES



BUILDINGS



PLACES



COLLECTIONS

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WHAT IS GBIG?

The Green Building Information Gateway

GBIG is a global platform for exploring and comparing the green dimensions of the built environment. GBIG provides insights that enable better buildings and communities.

[Watch the Video »](#)

[Learn More »](#)



[See GBIG in Action »](#)



ACTIVITIES
Green Events & Projects



BUILDINGS
Green Structures



PLACES
Cities, States & Countries



STRATEGIES
Processes & Practices



COLLECTIONS
Groups & Project Portfolios

Home » Activities » United States » District of Columbia » Washington

USGBC Headquarters



Overview

LEED Dashboard

Compare

Collections

Resources

Save This



CERTIFICATION SUMMARY

LEED for Commercial Interiors (v2009) Platinum on 9/1/2007



94/110
Possible Points

Exceptional

Top 1% of projects in this rating system version

WHY IT'S GREEN

Water

Energy

Site

Materials

Indoor

Environment

ACTIONS

Building systems calibrated and tested to perform to design specs

35% reduction in lighting power density

Purchased green power through 2-yr renewable energy contract

Commitment to monitor and verify ongoing energy consumption

LOCATION



This project is located at:

2101 L Street NW, Washington, DC, US

5 other events at this building

ACTIVITY DETAILS

Activity Type LEED Certification

Owner Type Non-Profit

Space Use Office

Project Size 73,300 sq ft

Project Scope Building interior



旧金山的生态城市工程

Eco-City Projects in San Francisco



Candlestick Point 烛台角/
Hunters Point Shipyard 猎人角码头
Treasure Island 金银岛

**San Francisco's Newest
Sustainable Neighborhoods**

旧金山最新的可持续发展社区



Clean Energy & Green Buildings

清洁能源和绿色建筑

Goals:

- **Renewable Energy: 100% Renewable by 2020**
- **Energy Efficiency: Reduce 400,000 tons CO₂/year**
- **Municipal electricity (170 MW) = 100% renewable**
- **20 MW solar PV (2500 installations, incl. 5 MW Sunset Res.)**
- **3 MW methane from wastewater treatment**
- **8,200 small/med businesses & multifamily buildings**
- **Reduced energy consumption by 45 MW**
- **Saved SF residents & businesses \$30 M on utility bills/yr**
- **LEED Gold required for all new construction, lg. retrofits**

➡ Treasure Island (CCI) & Hunters Point Developments



清洁能源和绿色建筑

目标:

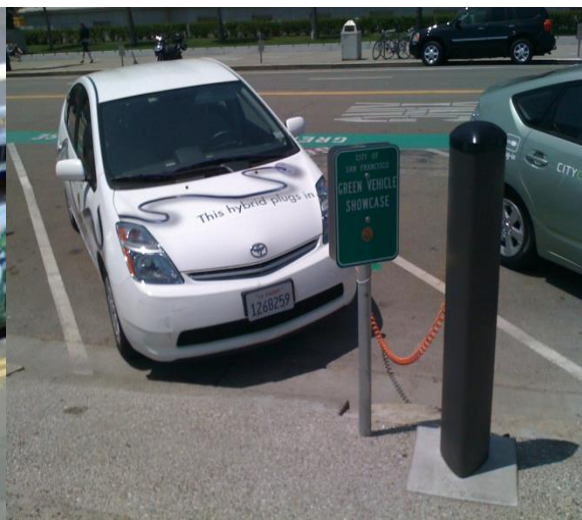
- 可再生能源: **2020年达到100%**
- 节能: 每年减少**400,000吨**二氧化碳排放
- 市政用电 (**170MW**) = **100%** 可再生能源
- **20 MW**来自太阳能光伏发电
- **3MW**来自污水处理中提取的沼气
- **8,200个**中小型企业与多户住宅
- 减少**45MW**的能耗
- 为旧金山的市民与企业每年节省三千万美元的电费
- 所有新建建筑需达到**LEED金级**



Clean Transportation 清洁能源交通

Goals:

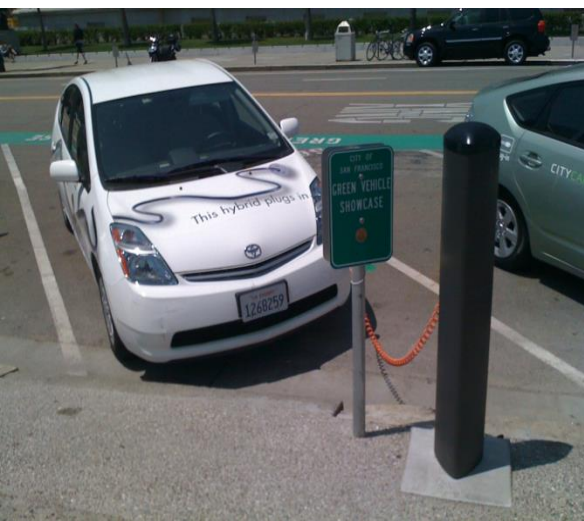
- Carbon neutral transportation system by 2030
- 20% trips by bicycle by 2020
- 100% of public transit is electric or B20 biodiesel
- Largest municipal electric fleet in country
- Largest municipal biodiesel (B20) fleet in country
- 78% taxis run on alternative fuels
- 7% trips by bike



Clean Transportation 清洁能源交通

目标:

- **2030**年达到交通系统碳中和
- **2020**年达到自行车解决**20%**的交通
- 公共交通**100%**使用电动或**B20**生物燃油车辆
- 全国最大的市政电动车车队
- 全国最大的市政生物燃油（**B20**）车队
- **78%**的出租车使用替代燃油
- **7%**的交通使用自行车



Zero Waste 零废弃物填埋

Goal: Zero waste by 2020

ACTIONS:

- Curbside recycling & composting
- Mandatory recycling of construction & demolition debris
- Banned plastic bags in supermarkets & drugstores
- Banned styrofoam
- Banned bottled water in City departments
- Mandatory recycling & composting (Oct '09)



78% diversion rate ➡ ***100%***

Zero Waste 零废弃物填埋

- 目标 **2020**年达到废弃物填埋量为零
- 措施：
 - 市政垃圾全部回收与堆肥
 - 建筑材料和拆除材料强制实行回收
 - 超市和药房禁止使用塑料袋
 - 禁止使用发泡胶
 - 市政厅各部门禁止使用瓶装水
 - 全面实行垃圾回收和堆肥（**2009年10月起**）





Benefits to Cities

对城市的益处

- Reduce energy costs for the government...and citizens
- Reduce urban pollution and resulting improved health
- Mitigate global climate change
- Assistance in achieving the National and City Energy Goals
- Reduce power grid congestion
- Help assure reliable energy supplies
- Foster economic development
- Produce jobs in new and emerging technologies
- Increase community pride and reputation



Benefits to Cities

对城市的益处

- 为政府.....以及市民减少能源费用
- 减少城市污染，从而改善健康
- 减轻全球气候变化
- 帮助国家和城市达到节能目标
- 减少电网负担
- 保证能源供应
- 促进经济发展
- 创造新技术领域就业机会
- 提高社区的荣誉感和知名度



October 12-18, 2014

GREENBUILD 2014

Everyone in a green building within this generation.

为这一代每一个人的绿色建筑





Resources You Can Use

WWW.USGBC.ORG

WWW.SFENVIRONMENT.ORG

[HTTP://WWW.ISO.ORG/ISO/HOME/STANDARDS/MANAGEMENT-STANDARDS/ISO50001.HTM](http://WWW.ISO.ORG/ISO/HOME/STANDARDS/MANAGEMENT-STANDARDS/ISO50001.HTM)

[HTTP://WWW.BBC.CO.UK/NEWS/BUSINESS-24134984](http://WWW.BBC.CO.UK/NEWS/BUSINESS-24134984)

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