

Sustainable Technology Research and Demonstration Center for Earth Structures

ISSS 2011 Xiamen University



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MU Design Inc. Japan

Objectives 目標

Marketing 市場營銷 and Packaging

- Provide Vehicle for Funding and Income 資助、
- Establish Demonstration Center 建立示範中心
- Focus and Prioritize Initiatives 重點和優先次序的倡議
- Educate, Train, Research 教育, 培訓, 研究
- Facilitate Cooperation, Build Partnerships 促進合作, 建立夥伴關係
- Set Goals and Key Performance Indicators. 設定的目標、關鍵性能指標

Concentration of earth structures
continually inhabited in Fujian, China
濃度不斷有人居住的地球結構



Bridging Past and Future

銜接過去和未來

- Past: sustainability of rammed earth structures, and Hakka lifestyle
- Future: Total environmental solutions for energy efficiency, water usage and regional environmental management.

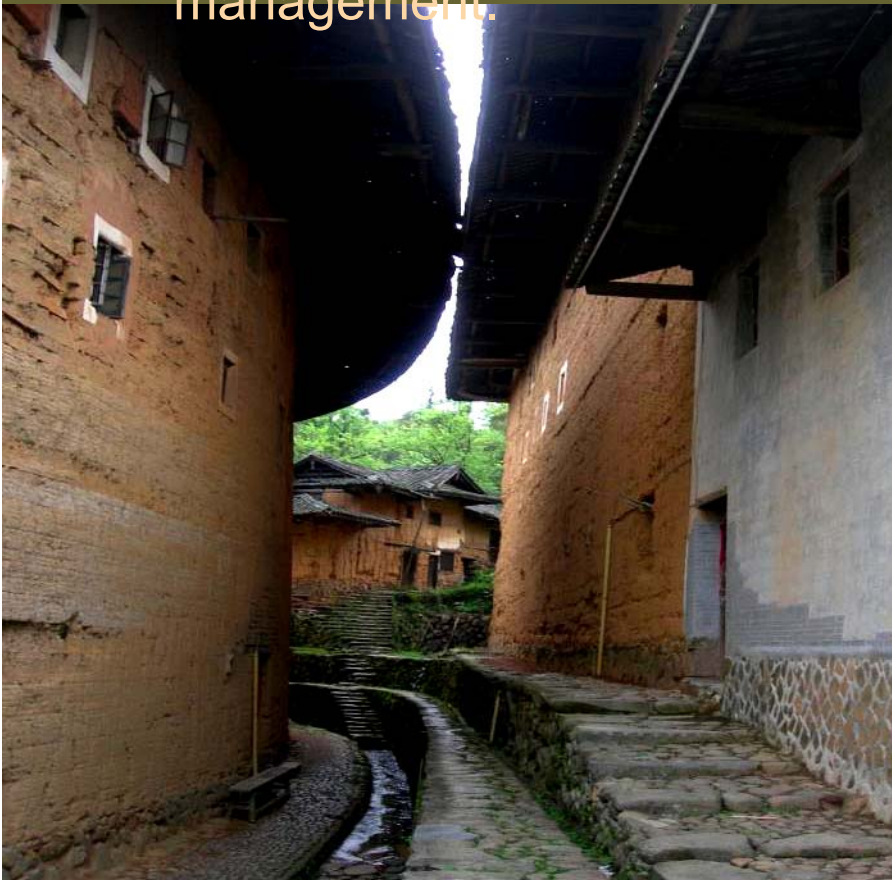


Photo credits: © Célia Macedo, 2008

Center for Earth Structures 地球結構研究中心

Research and Demonstration

- Develop site near existing Tuolu in the heart of China's World Heritage Site of Hakka Architecture 建立現有鄉村的中心附近
- Promote earth based construction and total sustainability.
推動地球的基礎建設和總的可持續性



Center for Earth Structures

Research and Demonstration Site

Monitor, preserve and restore existing structures

監測，保護，恢復現有建築物



Center for Earth Structures

Research and Demonstration Site

- Identify Sustainable Solutions for local development
確定為當地發展的可持續的解決方案



Center for Earth Structures

Research and Demonstration Site

Focus on comprehensive environmental solutions to regional issues

地區問題全面的環境解決方案



Center for Earth Structures

Research and Demonstration Site

Provide research, education and training programs and facilities
提供研究, 教育, 培訓計劃及設施



http://www.inforse.org/europe/seminar03_photos.htm

The Model 模式



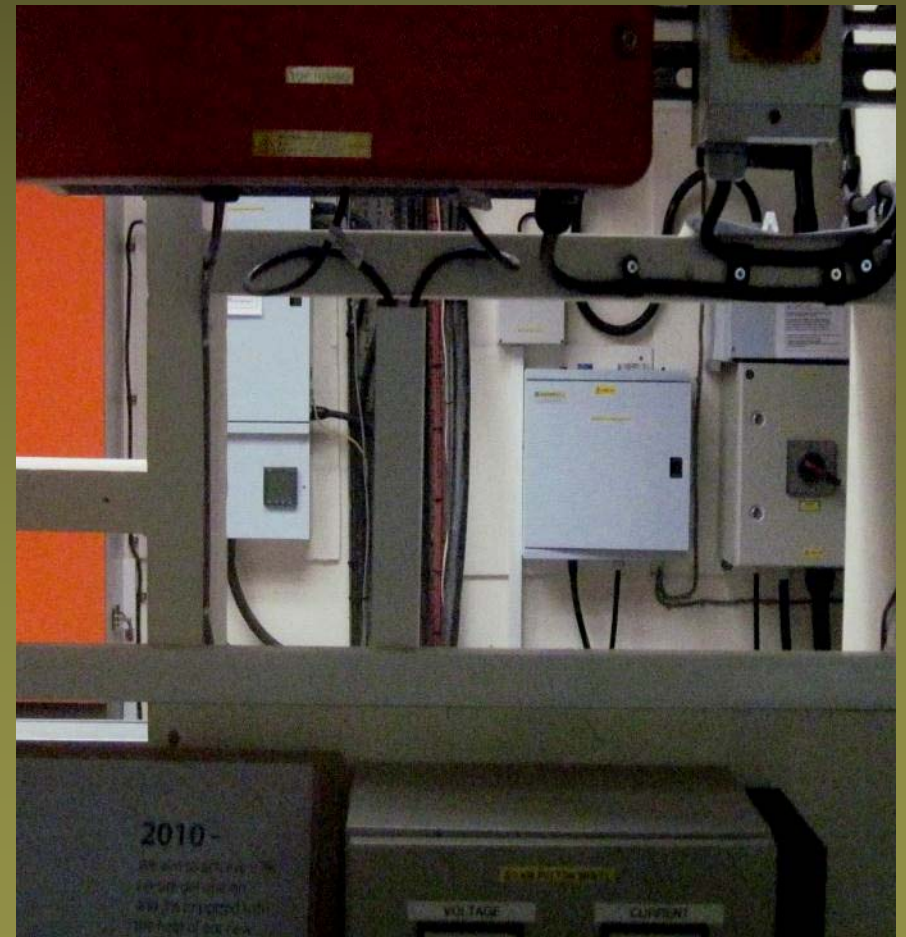
Center for Alternative Technology

替代技術中心

CAT

Wales U.K

What is CAT?



Participate in Your Future 參與你的未來

- Over 65,000 visitors per year 每年遊客超過 65,000
- Individual and family memberships 會員
- School programs 學校課程
- Research and residency programs 研究和住院醫生
- Advanced education 先進的教育
- Seminars and conferences. 研討會和會議

Center for Education and Training Est 1973

- Visitor center - 7 acres of hands on displays 遊客中心 - 顯示7畝
- 90 permanent staff and 60 volunteers 90名員工60名志願者



Practical Solutions and Applications of Sustainable Low/High Technology



Information Center 信息中心



Comprehensive Sustainable Solutions 全面和可持續的解決方案



Biotope 生活小區



Structures

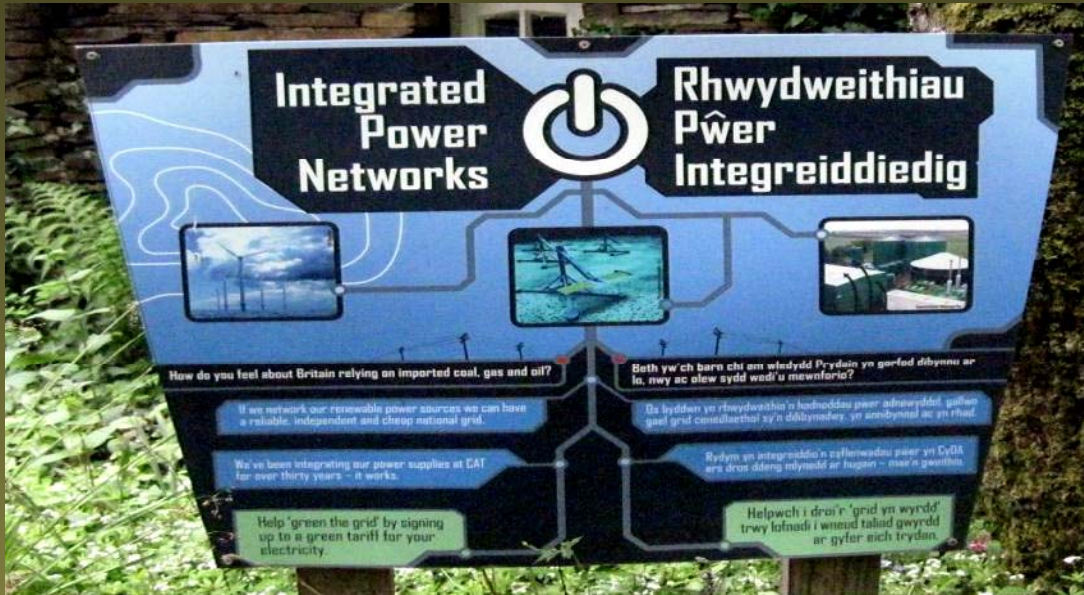
建築物類型



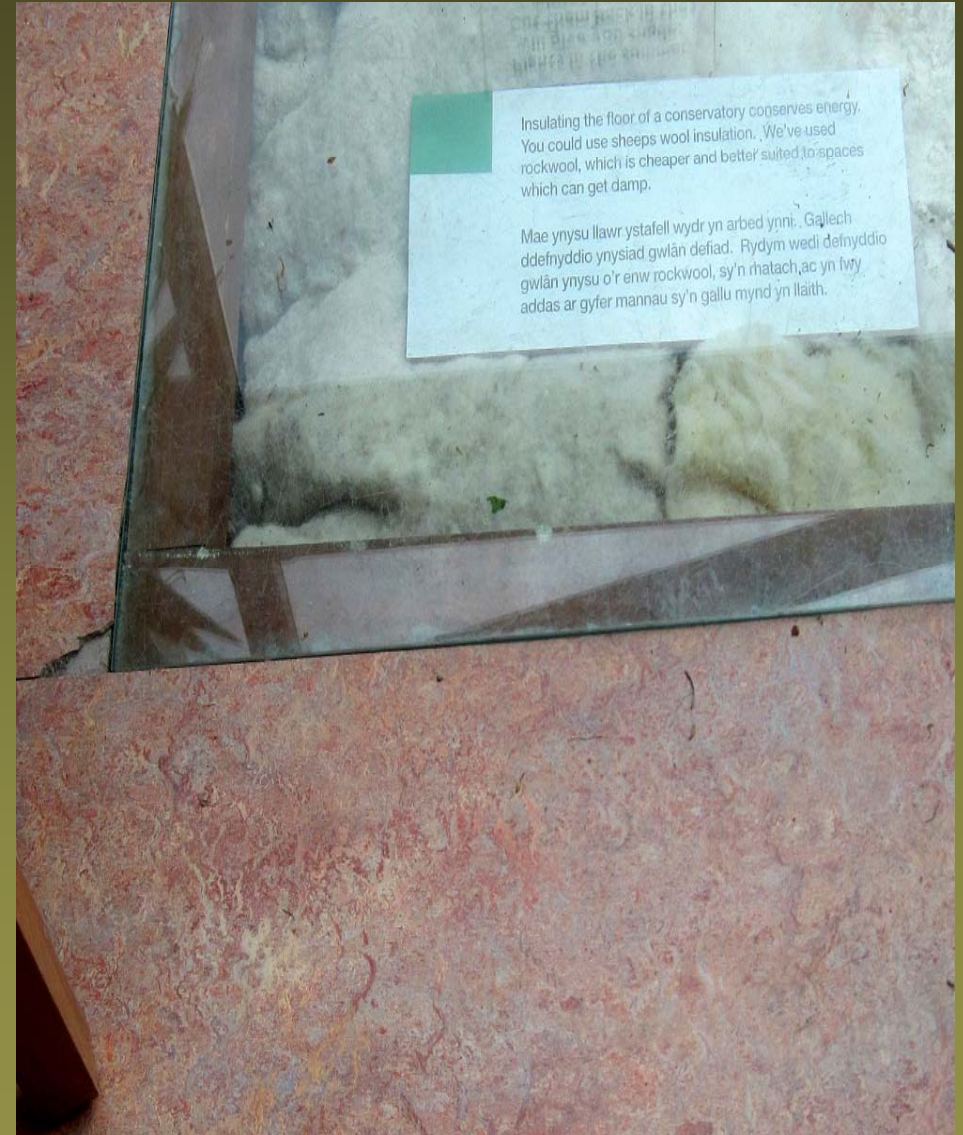
Monitor Sustainable Technology 監測可持續技術



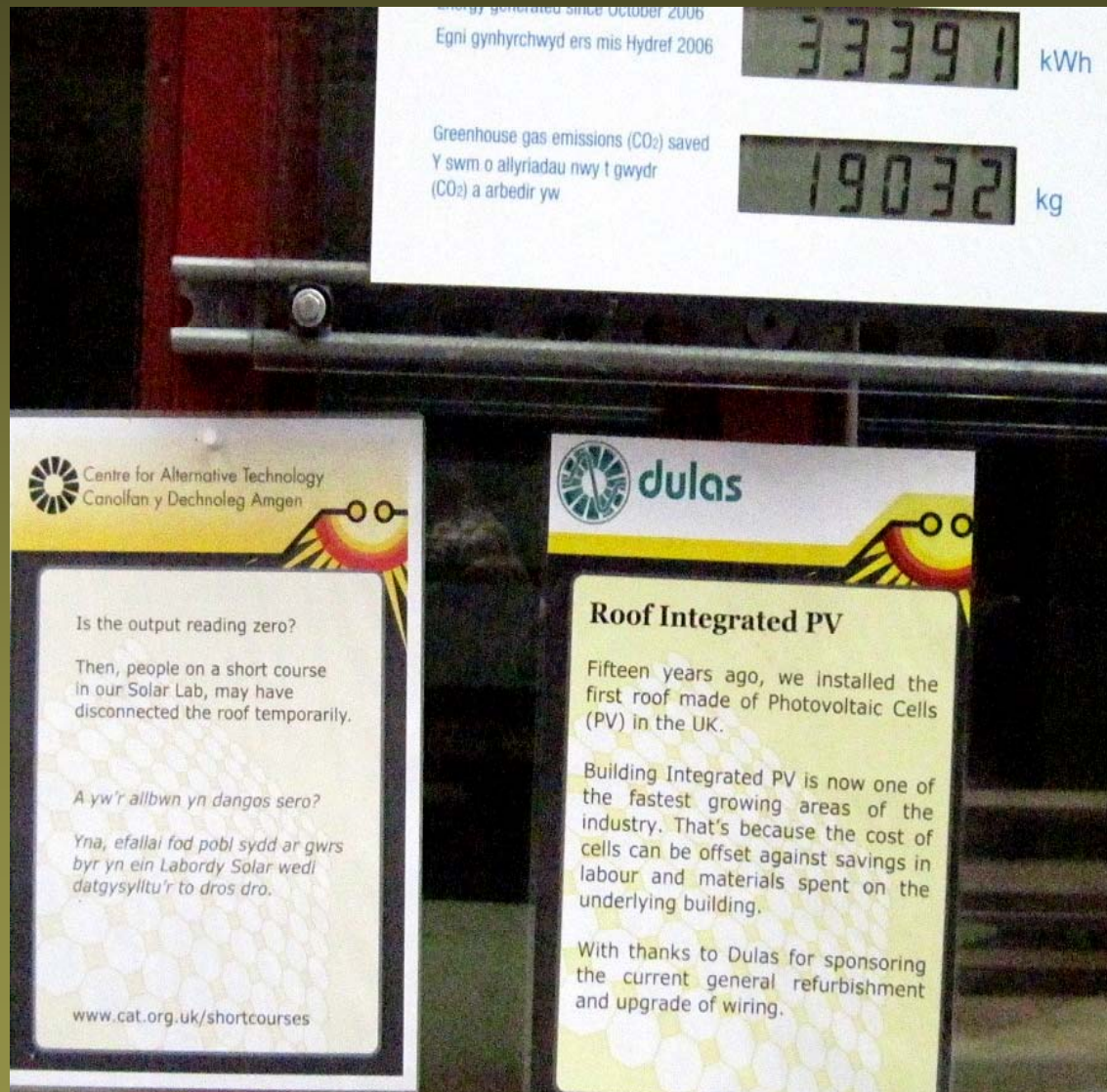
Educate 教育 Challenge 挑戰



Demonstrate 展示技術

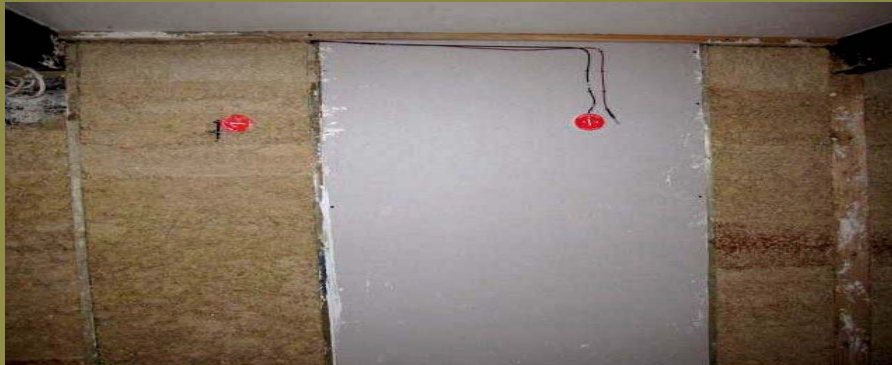


Sponsorship 贊助



CAT –Research Projects 研究項目

Building material and performance research
建築材料和建築性能的研究



CAT – Residency Program 研究居住

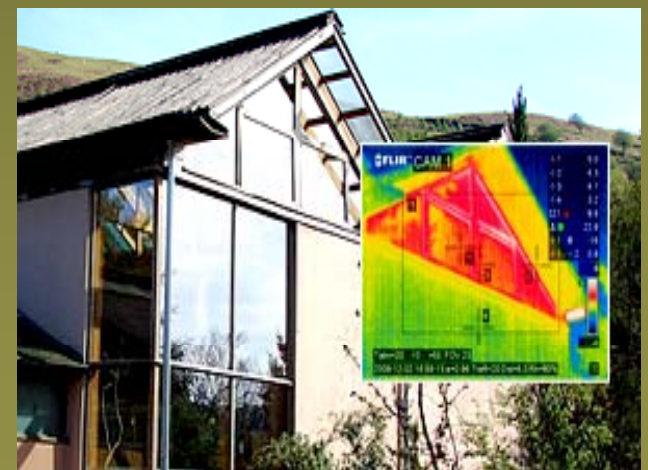
- 2 Cabins –18 people
- Complete monitoring of energy inputs and outputs
- Calculate energy efficiency of turbines and solar cells.
計算能源效率
- Monitor water usage
計算用水量



Wales Institute for Sustainable Education 威爾士研究所可持續發展教育

研究生院課程

- Distance-Learning MSc programs
University of East London
- MSc Architecture
- MSc Environmental Change & Practice
- Phd Ecological Building Practices
- Seminars & Conferences.



<http://www.cat.org.uk/>

Eden Project Cornwall U.K

Cultural Heritage
文化遺產

Storytelling 評書
Concerts 演唱會
Art Exhibitions
藝術展覽



Joint Environmental Initiatives in China 在中國的合資企業的環保措施

- Eco City Development
生態城市
- Energy Efficiency
能源效率
- Urban Planning
城市規劃

Tianjin – JV
China/Singapore



JUCCCE

Joint US-China Collaboration on Clean Energy

- Mayor Training Program (Educate, influence policy)
- Promote Energy Efficiency
- Promote cooperation

JUCCCE China Energy Forum 2011
聚思中国节能减排论坛

<http://jucce.com/forum/>



Eco-Partnerships Program

- High Level Government Program
- US – China Partnerships

*Tulane University & East China Normal University
global sustainable model for coastal cities*



SHARING BEST PRACTICES

FOSTERING INNOVATION

ENCOURAGING SUSTAINABLE ECONOMIC DEVELOPMENT

<http://www.ecopartnerships.gov/>

China US Center for Sustainable Development



China-U.S. Center for Sustainable Development
中美可持续发展中心



Huangbaiyu Project

- Clear objectives 明確的目標
- Oversight 監督
- Local circumstances 當地情況



International Cooperation 國際合作

- Auroville Earth Institute (India)
- International Vernacular Architect Unit – Oxford Institute of Sustainable Development
- Institute for Historic Building Conservation

Funding Options 資金類型

Initial government funding 啟動政府撥款

Table 2 Financial Guideline

Center Income 20 % 收入從中心

- training programs
- visitor admission fees
- seminars

Membership Fees 10% 會員費

(individual, corporate, academic, government agencies)

Private Sector Sponsorship 25% 企業贊助

Government Sponsorship 45% 政府贊助

Tourist Activities
旅遊活動

Demonstrate
Commercial
Products

展示商業產品



Public Private Partnerships 公私營合作

Corporate Participation 企業參與

- Link Companies and Center Objectives
- Promote Local and Regional Suppliers
- Company Data Base

Example

Solar power companies

Strategy 戰略

Key Players

- Xiamen University 廈門大學
- Chinese Government Representatives 中國政府代表
Local Provincial and Federal
- Business Representative 業務代表

Strategy 戰略

Stage 1

- Establish Steering Committee 建立督導委員會
(government,academic,business sectors)
- Identify Potential Partners
- Set Goals 設定的目標
- Key Performance Indicators 關鍵性能指標
- Identify and clarify intent of all partners

Strategy 戰略

Stage 2

- Initiate Private sector involvement
- Develop market survey
- Site selection - competition

Opportunities 機會

- Capitalize on the environmental sustainable historic structures
- Preserve and restore Hakka villages
- Retrofit to current living standards, increase energy efficiency
- Combining traditional techniques ,new technology and design

- Educate, train, demonstrate and promote practical sustainable solutions
- Support regional development and influence decision-makers
- Promote heritage-led regeneration and access to the historic environment
- Provide training to create employment opportunities in sustainable development in rural areas
- Demonstrate viability of sustainable earth based construction in remote and/or developing regions within a practical living environment

Take advantage of government eco cities, and rural development programs.

Center for Earth Structures

中心為地球結構

A Sustainable Demonstration Model

可持續示範樣板

- Education and Demonstration – create demand
教育和示範 -創造需求
- Education and Training – create employment
教育和培訓 -創造就業機會
- Applying sustainable solutions– improve living standards
實施可持續的解決方案 -提高生活水平