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ICARE

华中科技大学 中欧清洁与可再生能源学院
China-EU Institute for Clean and Renewable Energy
at Huazhong University of Science & Technology

L GEES Limited: First USGBC Education Partner in Greater China

上海智节：大中华区首家美国绿色建筑委员会(USGBC) 独立教育合作伙伴

LEED GA/AP 考试培训课程及建筑全生命周期影响评价课程

LEED v4 Green Associate / AP BD + C Exam Preparation Training & Building Life Cycle Analysis training

Convened by L GEES Limited & ICARE

主办单位: 上海智节建筑设计咨询有限公司

中欧清洁与可再生能源学院

NO. 1 - 6 in 2015 第 1 到 6 期

2015 May 五月 August 八月 September 九月 October 十月 December 十二月 in Shanghai 上海 and Wuhan 武汉

Supporting Organizations:

ParisTech
INSTITUT DES SCIENCES ET TECHNOLOGIES
PARIS INSTITUTE OF TECHNOLOGY



上海绿色建筑技术产业基地
Shanghai International Green Building Technology Incubator



中南建筑设计院
绿色建筑技术中心

LEED v4 AP BD+C & Building Life Cycle Analysis training
LEED v4 新建建筑专家培训 & 建筑全生命周期影响评价课程

OBJECTIVES 课程目标:

- ✓ **掌握 LEED AP v4 考试所需的所有知识点，包括 LEED® 流程、整合策略、选址和交通、可持续场地、用水效率、能源与大气、材料与资源、室内环境质量、项目周边环境和公共推广；**
Grasp the task domains for LEED AP Building Design and Construction (BD+C) exams for the new version (v4), including LEED process, Integrative strategies, Location and transportation, Sustainable sites, Water efficiency, Energy and atmosphere, Materials and resources, Indoor Environmental Quality, Project surroundings and public outreach;
- ✓ **掌握 LEED BD+C (新建筑设计及施工) 中 8 种认证类型的先决条件和得分点要求。8 种认证类型包括普通新建建筑、核心筒和外壳、学校、商场、数据中心、货舱、酒店以及医疗中心；**
Grasp the prerequisites and credits requirements under all the 8 sub-rating systems within LEED BD+C rating system including New Construction, Core and Shell, Schools, Retail, Data Centres, Warehouses and Distribution Centres, Hospitality and Healthcare;
- ✓ **掌握以上 8 种建筑类型进行 LEED BD+C 认证时的文件准备要求；**
Grasp the documentation requirements for LEED BD+C certification;
- ✓ **了解在中国运行 LEED BD+C 项目时可能存在的问题以及相应的解决方法；**
Understand the potential obstacles / difficulties to run LEED BD+C projects in China and possible solutions.
- ✓ **介绍建筑全生命周期影响 (LCA) 的概念及国内外评价标准；**
Understand the concept of life cycle analysis (LCA) and related standards
- ✓ **介绍 LCA 数据库 Ecoinvent 及其应用；**
Get the knowledge and understand the application of Ecoinvent, a LCA database
- ✓ **介绍 LCA 分析工具 EQUER 的实际操作。**
Understand the application of EQUER, a LCA tool

CURRICULUM 课程表:

Day 1 – 第一天 *	Day 2 - 第二天 #
1. USGBC, GBCI, LEED 在线介绍 <i>USGBC, GBCI, LEED Online introduction</i>	1. LEED BD+C 认证系统整合协同过程, 选址和交通得分点要求 <i>LEED BD+C Integrative Process, Location and Transportation Credits.</i>
2. LEED 专家资质体系介绍 <i>LEED professional scheme introduction: GA, AP and Fellow</i>	2. LEED BD+C 认证系统可持续场地先决条件和得分点要求 <i>LEED BD+C Sustainable Sites prerequisites and credits</i>
3. LEED BD+C (新建筑) 认证体系介绍 <i>LEED Building Design and Construction Introduction</i>	3. LEED BD+C 认证系统用水效率先决条件和得分点要求 <i>LEED BD+C Water Efficiency prerequisites and credits</i>
4. LEED EBOM (既有建筑) 认证体系介绍 <i>LEED Existing Building Operation and Maintenance Introduction</i>	4. LEED BD+C 认证系统能源和大气先决条件和得分点要求 <i>LEED BD+C Energy and Atmosphere prerequisites and credits</i>
5. LEED ID+C (室内装修) 认证体系介绍 <i>LEED Interior Design and Construction Introduction</i>	5. LEED BD+C 认证系统材料与资源先决条件和得分点要
6. LEED Homes (低层住宅) 认证体系介绍 <i>LEED Homes Introduction</i>	

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- | | |
|---|---|
| 7. LEED ND (社区开发)认证体系介绍
<i>LEED Neighbourhood Development Introduction</i> | 求
<i>LEED BD+C Materials and Resources prerequisites and credits</i> |
| 8. LEED 认证审核过程
<i>LEED Certification Process</i> | 6. LEED BD+C 认证系统室内环境质量先决条件和得分点要求
<i>LEED BD+C Indoor Environmental Quality prerequisites and credits</i> |
| 9. 绿建整合协同过程, 系统思考, 三重底线, 创新
<i>Green Building Integrative strategies, synergies, systems thinking, triple bottom line and innovation</i> | 7. LEED BD+C 认证系统创新设计、区域优先得分点要求
<i>LEED BD+C Innovation in Design, Regional Priority Credits and Pilot Credits</i> |
| 10. 可持续选址和交通
<i>Sustainable Location and transportation, sustainable sites</i> | 8. LEED 全球项目其他满足得分点要求方法
<i>LEED Global Alternative Compliance Path</i> |
| 11. 可持续场地设计
<i>Sustainable sites</i> | 9. LEED V3 和 V4 的差异
<i>Differences between LEED V3 and V4</i> |
| 12. 用水效率
<i>Water efficiency,</i> | 10. 当堂测试答疑
<i>In class Quiz</i> |
| 13. 能源和大气
<i>Energy and atmosphere</i> | 11. 后期复习指导
<i>Guidance for future exam preparation</i> |
| 14. 室内环境质量
<i>Indoor environmental quality</i> | |

Day 3 – 第三天

- | | |
|---|---|
| 1. 生态设计
<i>Eco-design</i> | 8. 建筑 LCA 分析方法：归一化，权重因子等方法
<i>Building LCA research method: unified method, weighted average method</i> |
| 2. LCA 概念和四个阶段的介绍, 包括目的与范畴确定, 生命周期清单分析, 生命周期影响评估, 生命周期阐释
<i>Concept of LCA and introduction of four distinct phases, including goal and scope definition, inventory analysis, impact assessment, interpretation</i> | 9. 建筑全生命周期影响分析 (LCIA) 方法
<i>Building Life cycle impact analyse (LCIA) method: interpretation, sensitivity analysis, uncertainty analysis</i> |
| 3. LCA 的应用
<i>Application of LCA</i> | 10. LCA 通用软件工具介绍 SimaPro
<i>LCA software introduction: SimaPro</i> |
| 4. 国际标准 ISO 14000 系列:
<i>ISO 14000 standards:</i>
ISO 14001 -- management system
ISO 14010 -- audit
ISO 14020 : labels (ISO14020, ISO 14021, ISO 14024, ISO 14024- EPD)
ISO 14030 -- environmental performance assessment
ISO 14040 -- life cycle analysis
ISO 14050 -- glossary | 11. LCA 建筑软件工具介绍和比较, 包括 EQUER, ENVEST, LTE OGIP, BECOST, ECO-QUANTUM, ECOSoft, ESCALE, LEGEP 等工具
<i>Introduction and comparison of LCA tools, including EQUER, ENVEST, LTE OGIP, BECOST, ECO-QUANTUM, ECOSoft, ESCALE, LEGEP</i> |
| 5. 法国建筑环境标准 AFNOR
<i>French building standard: AFNOR, P01-P30</i> | 12. LCA 数据库 Ecoinvent 简介
<i>Introduction to Ecoinvent</i> |
| 6. 中国 GB/T24020-ISO14020 环境标志系列标准
<i>Chinese Environmental Labels And Declarations Standard</i> | 13. Ecoinvent 的数据结构
<i>Data structure of Ecoinvent</i> |
| | 14. Ecoinvent 非本地化市场的推广: 单位换算, 材料重组, 本地化等
<i>Promotion of Ecoinvent in the non-local market: conversion, composition, contextualization</i> |
| | 15. LCA 分析工具 EQUER [△] 界面讲解和演示 |

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GB/T24020-ISO14020

7. 中国绿色建筑评价标准 GB/T50378-2014
*Chinese Evaluation Standard For Green Building
GB/T50378-2014*

Introduction of EQUER [△] and live demo

16. EQUER 模拟算例和敏感性分析
EQUER case study and sensitivity analysis

注意 Note :

* : 第一天的课程内容为 LEED 认证体系基础和核心的内容, 针对 LEED Green Associate 考试以及 LEED AP 考试中第一部分。如只需要进行 LEED Green Associate 考试, 只需要申请第一天课程即可。

The content in day-1 is the core concept adopted by LEED rating systems, which is covered by LEED Green Associate exam and section 1 of LEED Accredited Professional exam. If candidate only wants to take LEED Green Associate Exam, day-1 course is enough.

#: 第二天的课程内容为 LEED BD+C (新建筑设计及施工) 认证体系认证、得分点要求的内容, 针对 LEED AP 考试中第二部分。如已有 LEED Green Associate 资质, 只需要申请第二天课程即可。如无 LEED Green Associate 资质, 需要针对 LEED AP 考试的复习辅导, 则需要申请两天的课程。

The content in day-2 includes the specific requirements for LEED Building Design and Construction rating system, which is covered in section 2 of LEED AP BD+C exam. If candidate already have LEED Green Associate credential, and would like to apply LEED AP BD+C specialty exam, day-2 course is enough. If candidate had not yet achieved LEED Green Associate credential and would like to apply for LEED AP BD+C exam, both day-1 and day-2 courses are recommended.

举一例说明第一天与第二天课程内容区别 *One example below indicates the difference between day-1 and day-2 course*

知识点 *Knowledge* : 可持续场地设计章节中热岛效应 *Sustainable Sites Section: Heat Island Reduction*

第一天课程内容 *Day-1 Content*

1. 热岛效应定义 *Definition of Heat Island*
2. 太阳能反射系数定义 *Definition of Solar Reflectance Index*
3. 什么样的材料具备比较好的热岛防治效果 *Materials / design solutions to reduce heat island effect*
4. 在各个 LEED 认证体系中包括新建筑和既有建筑, 大致的得分点介绍 *Brief introduction of related credit requirement in LEED rating systems including new building ratings and existing building ratings*

第二天课程内容 *Day-2 Content*

1. 热岛效应相关得分点目的介绍 *Purpose of related credits*
2. 得分点要求(场地设计中绿化率、高反射材料应用面积、硬地面遮阳面积及合格的遮阳方式、停车场遮阳面积及合格的遮阳方式, 以及计算公式) *Credit requirements including percentage of green area, required area using material of high SRI value, required hard scape area with qualified shading, required car parking area with qualified shading, etc.*
3. 得分点实际应用步骤 *Procedures of credit implementation*
4. 需要提交 LEED 审核的文件 *Documents required for LEED submission*

△ : EQUER 是由法国国立巴黎高等矿业学校 (Mines ParisTech) 建筑热模拟与仿真实验室开发的一款建筑全生命周期软件, 软件嵌入了 Ecoinvent 等数据库和建筑能耗模拟等模块, 能够全面地对建筑全生命周期的能源消耗、资源消耗、环境影响进行分析, 作为一款商业软件在欧盟范围内得到广泛普及。

EQUER is a building LCA software developed by building thermal modeling and simulation laboratory of Mines ParisTech. This software has integrated Ecoinvent database and building energy consumption simulation module, which make it capable of carrying out a building energy consumption, resource consumption and environmental impact analysis in the whole life span. Now it is widely used within the European Union as a commercial software.

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LEED v4 新建建筑专家培训 & 建筑全生命周期影响评价课程

AUDIANCE 本课程适合人群:

本课程适合建筑师、项目经理、绿色建筑顾问、开发商、开发可持续发展协调员、景观设计师、技术经理、工程师、能源工程师、机电顾问及其他任何对绿色建筑基本原则，特别是对可持续发展设计、施工、管理、考虑全生命周期影响的建材及日用品采购等感兴趣的人士。本课程可协助考生获得 LEED AP BD+C 新建筑先锋认证资质。

This course is ideal for architect, project manager, green building consultant, developer, sustainability coordinator, landscape architect, technical manager, energy engineer, MEP consultant or anyone interested in understanding green building principles, especially sustainable design, construction, management and life-cycle impact aware purchasing. This course will facilitate you to get LEED AP BD+C.

TEACHING MATERIALS 学习资料:

- ✓ 由 USGBC 授权官方资料编制的 LEED AP BD+C 考试复习课本（共三册，第一册绿色建筑基本内容，第二册 LEED BD+C 认证系统先决条件和得分点资料，第三册 LEED BD+C 先决条件和得分点项目应用）
LEED AP BD+C exam preparation workbook supported by authorized USGBC intelligent properties. The workbook contains total of three books, book 1 is Core Concepts of Green Building, book 2 is Prerequisites and Credit Requirements for LEED BD+C rating system, book 3 is Implementing LEED BD+C for projects;
- ✓ 1000 题在线模拟仿真试题
1000 online mock exam questions
- ✓ 一个月售后，负责解答在复习过程中遇到的任何问题
One month follow up for your exam review
- ✓ Ecoinvent 数据库的介绍文档（英文）
Introduction of LCA data base, Ecoinvent (in English)
- ✓ 建筑 LCA 方法、应用和建筑 LCA 软件介绍（英文）
Building LCA concept, application and software introduction (in English)
- ✓ LCA 练习题（中英文）
LCA workbook (in Chinese and English)

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LANGUAGE 授课语言: English and Chinese 英文及中文 (以中文为主)

	LEED Green Associate and/or AP training LEED 培训		LCA training LCA 培训	
FEE 价格:	Shanghai 上海	Wuhan*武汉*	Shanghai 上海	Wuhan*武汉*
EARLY BIRD FEE 提前注册优惠价: (Register one month before training date 提前一个月注册)	4200 RMB (2300 RMB) [#]	3600 RMB (2000 RMB)	1400 RMB	1200 RMB
Member of supporting organization 支持单位会员/员工:	4600 RMB (2500 RMB)	4000 RMB (2200 RMB)	1600 RMB	1400 RMB
Company discount ^ 公司优惠 ^	4000 RMB (2200 RMB)	3200 RMB (1800 RMB)	1300 RMB	1100 RMB
OTHERS 其他:	5000 RMB (2700 RMB)	4400 RMB (2400 RMB)	1800 RMB	1600 RMB
VENUE 地点:	Shanghai Tongji University** 上海同济大学**	Huazhong University of Science & Technology 华中科技大学	Shanghai Tongji University** 上海同济大学**	Huazhong University of Science & Technology 华中科技大学

Time 时间: Please refer to the dates indicated in the registration form 请见‘登记表格’

Note 注意:

*: 武汉地区的优惠价仅适用于 2015 年，2016 年武汉地区培训收费将与其他地区一致。

The discounted fee offered for Wuhan is for 2015 only. In 2016, the fee for Wuhan training will be the same as that in Shanghai.

#: 所有括号内的价格为只报名一天课程的价格。

All prices in brackets apply for students applying one day course only.

^: 超过三名学员来自同一公司可享受公司优惠。

More than three students coming from the same company can enjoy company discount.

**培训地点可能会有变化，将及时告知。

The training venue may change, to be confirmed later.

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SPEAKER 主讲:

Ms. Lili Pan 潘莉莉女士



上海智节创始人及执行董事 *Founder, Managing Director of L GEES Limited*

LEED 新建筑认证专家, 既有建筑认证专家, 装修项目认证专家 LEED AP BD+C, O+M, ID+C

2010-2011 年度美国绿色建筑委员会青年专家 *USGBC Emerging Professional 2010-2011*

美国绿色建筑委员会国际圆桌小组成员 *USGBC International Round Table Member*

香港 LEED 认证专家协会 PLATINUM 创始会员 *Founding Member of Platinum, Hong Kong*

中国绿色建筑专家同盟(SBC)创始会员及主席 *Founding Member and Chairlady of Sustainable Buildings Collaborative*

潘莉莉女士从 2008 年开始从事 LEED 项目顾问工作, 至今已为香港、中国大陆、新加坡、菲律宾及韩国的多个地标性建筑提供 LEED 顾问服务。在这些项目中, 潘女士通过建筑能耗模拟、建筑调试/再调试及能源审计验证, 实施了建筑'全生命周期能源表现质量监管'程序。潘女士精通 LEED 采用的标准, 包括 ASHRAE, IPMVP 等。

Ms. Lili Pan has been working on LEED project since 2008, and provided LEED consultant services to many landmark projects in HK, Mainland China, Singapore, Philippines and Korea. She has practiced 'life cycle energy performance quality assurance' in those projects through energy modeling, building commissioning/retro commissioning and measurement & verification. She has good understanding of standards adopted by LEED, including ASHRAE and IPMVP etc.

潘女士一直致力于绿色建筑的研究, 到目前为止已发表了多篇论文, 包括发表在第 6 届与第 8 届国际绿色建筑与建筑节能大会上的'绿色建筑调试'以及'中国绿色建筑评价标准应加入能耗系统调试要求'。潘女士是英国卡迪夫大学博士, 研究课题是'建筑调试对提高建筑能耗模拟准确度的作用'

Lili is also actively engaged in green building research. She is the author of several papers and publications, including 'Commissioning requirement shall be incorporated into China Green Building Rating system', published at IC-GEEB, Beijing. She is also a part-time PhD student at Cardiff University with research topic of 'Valuing commissioning to improve the predictive ability of energy modeling'.

潘女士在 2011 年被 USGBC 授予青年专家称谓, 是目前为止大中华区唯一获此殊荣的 LEED 认证专家。在 2013 年和 2014 年两度接受 USGBC LEED in Motion(LEED 在行动)系列报道, 并在 2014 年受 USGBC 邀请担任 Greenbuild(全世界规模最大的绿色建筑论坛)演讲嘉宾。

Lili was awarded as Emerging Professional by USGBC in 2011. She is so far the only LEED professional granted with this award in Greater China Region. Lili was interviewed twice by LEED in Motion report in 2013 and 2014. She was also invited by USGBC to be a speaker in Green Build 2014, which is the biggest green building conference in the world.

Specialties 专业领域:

1. LEED 认证体系 *LEED Rating Systems*
2. 绿色建筑培训 *Green building training*
3. 建筑调试 *Building commissioning*
4. 能源审计 *Energy audits*
5. 能源测量验证 *Energy Measurement and Verification*
6. 能耗模拟 *Energy modeling*

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SPEAKER 主讲:



Mr. Yang Gao 高扬先生

法国国立高等矿业学校工程师学位 (节能建筑方向)

Engineering Degree (building energy saving direction) at Ecoles des Mines

拥有丰富的建筑生命周期评估项目经验和生命周期评估软件开发经验

Abundant experience in building LCA and LCA software development

高扬先生曾先后在法国电力公司节能建筑研究中心和巴黎高矿能源与工艺研究中心，从事建筑通风、能耗仿真、建筑全生命周期分析 (LCA) 和 LCA 软件开发的研究。参与的项目有:

- 法国建筑部项目 BAZED (零垃圾排放房屋)，运用全生命周期分析方法，对建筑垃圾“零排放方法”进行建模分析，减少 60% 的建筑全生命周期垃圾排放；
- 承担完成建筑全生命周期软件 novaEQUER 数据库二次开发、废物利用 (Reuse) 模块开发工作；
- 负责建筑能耗仿真软件 Pleiades+Comfie (P+C) 和全生命周期软件 EQUER 的汉化工作；
- 法国电力公司 OSOMOSYS 项目，承担建筑通用仿真数据库通风模块开发，实现了单域和多域的通风建模和界面实现；
- 欧盟办公建筑项目 SIGED (能源智能管理系统)，基于 Pleiades+Comfie (P+C) 建筑热仿真软件计算，实现对办公建筑热舒适性能的实时预测和评估。

Mr. Yang Gao involved building ventilation, energy modeling, LCA and LCA software development researches in Electricité de France (EDF) building sustainability department and Ecoles des Mines energy research department.

- *He was a team member of the French Building Ministry's BAZED project. By conducting LCA, the project was able to reduce 60% waste in its lifetime.*
- *He redeveloped the database and the Reuse model of a building LCA tool, called novaEQUER.*
- *He is also in charge of the localization work for building modeling software Pleiades+Comfie (P+C) and LCA tool EQUER.*
- *He participated in the OSOMOSYS project in EDF, taking charge of building ventilation system (single zone and multiple zones) modeling development.*
- *In SIGED project that was funded by EU, Mr. Yang Gao developed a Pleiades+Comfie (P+C) based building thermal modeling and real-time simulation software.*

Specialties 专业领域 :

1. 全生命周期影响评估 *LCA*
2. 全生命周期评估软件开发 *LCA tool development*
3. 建筑通风模拟 *Building ventilation modeling*
4. 建筑热模拟 *Building thermal modeling*

LEED v4 AP BD+C & Building Life Cycle Analysis training
LEED v4 新建建筑专家培训 & 建筑全生命周期影响评价课程

登记表格 REGISTRATION FORM

申请人资料 APPLICANT'S DETAILS

姓名 Name

公司 Company:

注：将会以此开据公司发票，请务必核实，勿简写

你的职位

Your Position:

会员编号:

Membership No.:

联络资料 CONTACT INFORMATION

手提 Mobile:

电邮 E-Mail :

请选择您想参与的课程 Please tick which course to be applied

第一天课程 Day-1 Course (Green Associate)

上海课程 Shanghai 五月 May 16 OR 八月 Aug 01 OR 十月 Oct 24

武汉课程 Wuhan 五月 May 08 OR 九月 Sep 05 OR 十二月 Dec 19

第二天课程 Day-2 Course (Accredited Professional BD+C)

上海课程 Shanghai 五月 May 17 OR 八月 Aug 02 OR 十月 Oct 25

武汉课程 Wuhan 五月 May 09 OR 九月 Sep 06 OR 十二月 Dec 20

第三天课程 Day-3 Course (LCA)

上海课程 Shanghai 五月 May 18 OR 八月 Aug 03 OR 十月 Oct 26

武汉课程 Wuhan 五月 May 10 OR 九月 Sep 07 OR 十二月 Dec 21

总价 FEE

培训总价(Total training fee in RMB) _____ 申请参加培训人数 (No. of students) _____

请将款项支付到以下银行账号，并将汇款回执拍照后连同此报名表一并发送至 86917652@qq.com

申请人签名

APPLICANT'S Signature:

日期

DATE:

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付款方式 PAYMENT METHOD

开户名 Account name: 上海智节建筑设计咨询有限公司 卡号 Account number: 31001517713052506969

开户行 Bank : 建设银行上海双城路支行

咨询 ENQUIRY

Aviva Feng 冯曼: 86917652@qq.com 电话: 185-0713-0095

Stanley Chen 陈湛通: stanley.chen@lgees-ltd.com 电话: 186-0173-1908