

# 深蓝——建筑营造实验

## Deep Blue - Experiment in Digital Design and Making

<http://fac.arch.hku.hk/summer/hk/dp>

「深蓝」是香港大學教授領銜的一個知識交流實驗專案。它基於「數位化實踐」暑期工作坊的教學成果,在數位化平臺下整合材料性能、設計形態和加工方式的一次設計建造嘗試。這個足尺度的構築物得到了香港和內地多家贊助公司及企業的支持。

「深蓝」的目的是通過把平淡無奇的回收材料轉變為新穎愉悅的臨時棚亭，提升公眾的環保意識；傳播設計和製造的數位化應用；并提升香港成為國際設計創意大都會之一。

「深蓝」選取了回收的高密度藍色塑膠桶，它既是表面的圍合材料，塑造特有的質感和效果；又是結構的連接支撐構件。每一個桶都會根據和它周邊連接桶的重疊面的尺寸，決定連接孔的位置和數控切割「開花」的程度，使其從外面看仿佛一朵朵的藍色玫瑰，徹底改變人們對於原有桶的形態認知，同時保留力學性能最關鍵的桶底。整個設計明晰的過程，包括自動生成加工所需的G-Code，只有在數位化參數建模和程式設計運算的平臺下才能得以實現。建造的過程也根據這種材料的特點，結合臨時豎杆支撐和地面組裝、整體旋轉對位的方式，完成主體結構拱的組裝建造。

「深蓝」首先在香港大學的大學街展示一個月,之後移送到香港荃灣的愉景新城商場,作為公眾活動的藝術舞臺長時間使用。

主辦單位：香港大學建築系  
項目性質：臨時構築物設計營造實驗  
展覽日期：1st – 27th Feb 2013  
地點：香港大學大學街（黃克競樓北側廣場）  
設計時間：2012年8月-11月  
材料：130個回收塑膠桶  
總用地面積：49平米  
總建築投影面積：40平米  
總造價：9.8萬元人民幣  
項目設計師：高岩，Olivier Ottevaere  
設計團隊：  
香港大學：蔡鴻奎，梁博然  
凱達：梅鉅川  
奧雅納工程顧問：趙恩望，何彥邦  
以及：毛小章，關舜之，Tiffany Tivasuradej，Karen Jie-rong Chen，Riyad Joucka  
特別鳴謝：宋剛（華南理工大學）和 毛小章

支援贊助單位：



Aug 2012 - Feb 2013



The Deep Blue is a Knowledge Exchange project based on the outcomes of the Digital Practice International Summer Program at Department of Architecture, The University of Hong Kong (HKU). Led by professors of HKU, this project integrated materialization with digital computation and fabrication. It attracted sponsors from local architectural and engineering companies, as well as manufacturers and material suppliers.

The main objectives are to raise environmental awareness by transforming mundane recycled materials into an inspiring structure, to explore digital design and making with ordinary fabrication methods in PRD China, and to promote Hong Kong as one of the world-class cities for design innovation.

The design team synthesized the visual effect of the recycled High Density Polyethylene Drums (HDPE) with its structural and connecting capabilities. Each HDPE transforms radically into flower alike at the top without losing the structural integrity at the bottom through the various cuts according to the overlapped surface area connected to the adjacent barrels, which also determines the fixing point of the internal timber disks as the stiffeners. The fabrication process integrated parametric generation of the G-code for controlling a 3 axes CNC machine. A strategic construction sequence had to be followed in order to minimize the accumulating deflection in the global scale.

This design-and-built project was first displayed in one of the most populated pathway in HKU, and then was reassembled in Discovery Park Shopping Centre as a permanent structure for various public events.

Organiser: Department of Architecture, HKU  
Project type: Pavilion experimentation  
Exhibition date: 1st - 27th Feb 2013  
Location: The University Street, HKU  
Material: 130 recycled blue barrels  
Gross Land Area: 49m<sup>2</sup>  
Projection Area: 40m<sup>2</sup>  
Total cost: 98,000 CNY  
Project architect: Yan Gao, Olivier Ottevaere  
Design team:  
Cai Hongkui (HKU), Victor Leung, Paul Mui (Aedas), Anthony Chiu (Arup), Don Ho (Arup), and Shortpain Mao, Calvin Kwan, Tiffany Tivasuradej, Karen Jie-rong Chen, Riyad Joucka (HKU)  
Special acknowledgement: Gang Song (SCUT), Shortpain Mao

Sponsors:

