正東街幼兒園—災後重建

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香港大學土木工程系

正東街幼兒園

Zhengdong Street Kindergarten

災後重建

Reconstruction work

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前 言

Prefaces

梁秉中 教授

“關懷行動”是一個香港註冊的義務工作團體。在1993年成立，目的在輔助中國邊遠地區的康復發展，給肢體傷殘的貧困居民診病、手術、康復訓練等，希望在服務過程，給落後地區傳授全面的專業知識和經驗。

二十多年來“關懷行動”沒有參加過任何工程建造的工作。

2008年5月12日四川汶川大地震，震區廣闊，包括了“關懷行動”多年來服務過的大邑和崇州兩縣。“關懷行動”因應兩地緊急要求，連續四周出動，協助醫療救助工作。之後，但見不少衛生站，中、小學，倒塌之後只剩殘垣斷瓦。崇州縣政府，正謀重建一所幼兒園，該園歷史悠久，老建築經不起震盪，全倒了。“關懷行動”積累了充足的捐款，可以投入重建。可是，專業知識和技術那裡來？

“明德工程”是香港大學土木工程校友和老師合作的組織，已熟識內地農村的情況，已在廣西省完成了兩項學生宿舍的鄉村工程，正是最好不過的重建夥伴。“關懷行動”歷來的服務情懷，希望香港人在過程中直接參加，希望專業人士主導，希望大專同學參加，從義務工作中增加經驗，同時多點了解貧困的中國地區。“明德工程”的專業扶貧歷史，與“關懷行動”的觀點完全一致。兩個義務組織，於是聯合啟動崇州正東街幼兒園的重建工作。

重建的過程中，在老師的帶領下，近200名的在學同學和校友作出了實地的工作奉獻。從視察、構思、設計、改變設計、工程計劃、招標、勘察、工程起動、內部設計、評估等，連續39個月(2008年8月至2011年11月)，把一個完善實用、充滿現代氣息和美感的幼兒園建立起來。正東街幼兒園的磚木，沾附着每一位同學，每一個老師、校友的汗水和氣息。其中與同學打成一片的郭博士，和不分晝夜監督的陳總管，最令人忘不了。

建成後的正東街幼兒園，實在是充滿與眾不同的特色。

首先，在那正東街古老房屋的狹縫中，聳立着這現代氣息濃厚，但仍顯明是樸素實用的建築，在我國農村地區是見不到的。單獨其外貌，已吸引所有的縣內父母長輩，寄望自己的幼兒，能進園受教。也許，幼兒園的特殊外觀，已能令過路者懷疑，那是中外合作的特殊產物。

第二，只有實際經歷了工程進展情況的本地人，才理解幼兒園的建立，一定程度上見證了香港人對國家的特殊情懷，國家有難、港人有責。同學、校友和老師的熱烈支持，也建基於那特殊的情懷。我接觸過的不少同學，見證了他們經歷的喜悅，能為災民盡點力的喜悅。

第三，在那不長不短的三年多，兩個義務團體獲得了當地政府的不同科室的協助與支持。兩地處事習慣的不同，自然帶出特殊包容的需要，結果一些問題都能融洽地順利解決。我們還有援建後的願望：正東街幼兒園成為模範幼兒園，四川省模範幼兒園，以致全國模範幼兒園。據了解，正東街肯定已經是崇州地區最受歡迎的幼兒就學單位。正東街幼兒園的老師，到北京、香港幼兒教育中心繼續探討幼兒教育的新動態、新理念，不斷在進行呢。

“明德工程”本着明德需要，開展大義相助的工程。過程中帶領年青人格物致知，努力不懈，促進各展所長，實在令人欣羨不已。深信一件、又一件的工程，之後仍不斷開展，不斷完成。

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"Operation Concern" is a registered Charity Organisation in Hong Kong established since 1993. "Operation Concern" organises experts on orthopaedics, rehabilitation and nursing to give voluntary services to disabled people living in the remote areas in China. Through surgery, rehabilitation training and demonstration, the volunteers wish to pass on professional knowledge and skill.

In the past 20+ years, "Operation Concern" has never involved in any engineering work.

The May 12 Major earthquake in Sichuan in 2008 shocked the world. The damages and mortalities involved large areas and huge populations. The quake areas in Sichuan included a few towns and villages that "Operation Concern" has developed working relationship in the past. Naturally "Operation Concern" sent volunteers to help with the injured. The devastating damages were revealed to them most vividly. Hospitals, clinics, schools and kindergartens were totally destroyed, among the many, many houses. Could they help? Donations had been received, could the relief efforts be changed to restoration of hospitals or schools?

"Operation Concern" was lucky to have "Project Mingde Foundation" as a partner in the joint project of Rebuilding the Zheng Dong Street Kindergarten.

"Project Mingde" had had good experience building schools and dormitories in rural China, through the expertise and efforts of teachers and students in the Departments of Civil Engineering and Architecture. Students, under the guidances of expert academics, professors and teachers, and alumni, took turns to go on site, to participate in the planning, and the actual construction work. This time "Operation Concern", which greatly appreciated Project Mingde's working principles and was overwhelmed when it obtained the support from Mingde.

The building processes had been lengthy and difficult. A total of 39 months (August 2008 to November 2011) were spent before the pleasant kindergarten was completed. Every brick and every inch of playground experienced the blood and sweat of the students and their teachers. One could not forget Dr. Kwok and Mr. Chan, who were always there with the student, wearing their smiles and wet shirts.

The new Kindergarten as it is today, does carry remarkable features, and the unique history of establishment is much worthy of note.

Firstly, the construction is set within a narrow space surrounded by old village houses, some of which are dilapidated. The building process is henceforth, never straightforward. Today, no one would argue that the new Kindergarten is simple and modern looking that would attract the kids and their guardians much more than any other kindergarten nearby and in Sichuan. The new Kindergarten has gained the confidence of all parents in the vicinity who have ear-marked this premise as the top choice for their toddlers and children of the right age.

Then, the rebuild of the Kindergarten, is a good demonstration of the Hong Kong Community's compatriot temperament. When China experiences a disaster, let us all help. Professors, teachers, students, experts, all choose to share the same commitment of doing something useful. During the many months of construction work, I

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met student: I shared their simple feeling of joy when it was so plain that we just wanted to show some concern for the deprived victims of the Quake.

Finally, during the 39 months' period both "Project Mingde" and "Operation Concern" have been getting substantial help and encouragement from both the Hong Kong and Local Government of Sichuan. The different management requirements must have provided difficulties and sometimes misunderstandings. At this stage, after the happy completion, we are all happy to realize that, since we have a common goal on a good course, all problems could be effectively solved. Our expectation has extended beyond the provision of the kindergarten building. We wish Zheng Dong Street Kindergarten would become a model Kindergarten in the Town of Chongzhou, the model Kindergarten in Sichuan, and in China. We certainly see this trend already: the teachers have been paying visits to Beijing and Hong Kong, in order to acquire update information about preschool education. A perfect infrastructure is essential for the emergence of a modern model superstructure.

The completed Kindergarten project, is another milestone on the development of Project Mingde on its innovative pathway of broadening the mind of students through direct participation of Charity Engineering. Salute to Project Mingde.

徐碧美 教授

二零零五年，我有幸被委以重任，負責推動香港大學「三三四」新學制及課程改革的工作， 擔任四年制本科課程改革督導委員會主席，其后於二零零七年，出任副校長（教學及學習）一職。我做的第一件事，就是請不同學院的同事們介紹他們引以為傲的教學事跡。

港大工程學院土木工程系譚國煥教授及李啟光教授向我介紹了該系推展的「明德工程」項目。當時他們已於二零零五年為廣西貧困地區興建了一所小學（明德樓），以及為廣西融水職校建造了一座宿舍（格物樓），也從二零零八年起援川重建在地震中倒塌的四川崇州正東街幼兒園。這立即與我所持的學習觀引起共鳴：傳統的學習觀是把在課堂上所謂“正規”的學習和在課堂以外所謂“非正規”的學習人為地分割。課程這概念應該重新被定義為“學生學習經歷的總和”。當我發現這學習觀已經在港大工程學院實現，即感到異常興奮、欽佩！

近年來，越來越多本地與國際大學為學生們提供了在課堂外參與實地項目的機會。然而，大多此類學習活動是課外的，即定義上學生們是在“正規”課程以外進行此類活動，而且學生們參與與否也往往視他們的興趣與時間而定。明德工程之所以能脫穎而出，是因其與“正規”課程及學習的融合，以及其中心主旨：通過建設項目的實際規劃、設計和實施，來培育下一代的工程師。在港大的新課程，我們稱之為“體驗學習”。

如「明德工程」這一類“體驗學習”為什麼如此重要？在課堂教學或教科書中提出的問題往往是明確介定的，而每個問題都有由教授評定為正確和錯誤的解決方案。然而在現實生活中，問題通常是不明確或不容易介定的，而且問題經常沒有完美的解決方案。再者，各問題所處的情況不同，多重因素的互動也會影響各個解決問題的過程和方法。因此當學生們被置於現實情況時，往往會覺得迷茫，無助。這也導致雇主常批評學生缺乏解決問題的能力。

在現實生活中，問題的鑑識與解決的方法往往需建基於廣泛的、跨學科的知識。我們的視野需超越一般的技術考量，並顧及到所有的環境因素，包括社會、文化、經濟和政治等因素，來介定並處理問題。我們也需意識到，並非所有問題都有完美的解決方案，有些措施甚至會導致其他問題的衍生。透過讓學生參與實際項目，融合專業實踐與理論知識，我們讓學生有機會實證考驗理論，加深對理論的了解；且更重要的是，用新的視角領略理論，開創新理論。也正是在這種情況下，學生能建立自身的核心價值和技能，來有效地應對這瞬息萬變的世界。

為了更深入了解明德工程的中心主旨和學生學習，我採訪了土木工程系郭大江博士及李啟光教授兩位同事，以及當時參與該項目的六位本科生和六位畢業生。我當時也有機會參與了四川崇州正東街幼兒園的開幕儀式。我和學生們的訪談資料都充分顯示，學生們都非常積極地通過尋求及把握技術知識來解決項目進行時所面對的實際問題，並和同學、教授、校友工程師和建筑師們展開討論，也意識到社會、文化、經濟和政治等因素是如何大大影響該項目極為複雜的實施過程。最令我印象深刻的是，本科生和畢業生都均認為，此學習經驗讓他們醒思，如何成為一名肩負社會責任的工程師，為建設更美好的世界而努力。

我與郭博士和李教授的採訪是一個讓我謙遜的經驗：他們勾勒出了團隊的項目選項、選址勘察、工程規劃與設計；這一切由一股信念所推動，即如何能最完善地幫助弱勢社群，以及如何幫助學生不僅能掌握技術知識，也能培育出公平、公正、關懷社會的核心價值觀。郭博士和李教授也敘述了他們如何與學生一起應付惡劣的工作環境，如何引導學生自找解決辦法，以及如何提供機會讓學生的參與逐步深入；故事讓人感動，引人反思。

明德工程不僅涉及港大工程學院的教師團隊，也獲得了校友工程師和建筑師的積極參與。他們不僅犧牲了寶貴的休假時間，也為學生們提供現場支助，有些甚至捐獻了資金，支持各項發展項目。利希慎基金也慷慨贊助了學生們的交通費。

徐碧美 教授

我在多個不同的國際會議上，就港大的本科課程改革一題作主題演講，且敘述明德工程所展現的體驗式學習時，往往獲會議的參與者高度評價和贊揚，令港大走在課程改革與創新的前端!

我要借此機會特別感謝譚國煥教授、李啟光教授、關國雄教授、郭大江博士、蘇啟亮副教授、名譽大學院士楊澍人博士 (或被學生熟稱為Uncle Nick)、麥齊光教授, 以及其他幕後功臣。他們在過去十年為明德工程無私奉獻良多，是大學如何栽培下一代專才的杰出榜樣。我想對他們說： "港大以你們為傲!"

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二零一六年一月

Prof Amy Tsui

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In 2005, I was given the onerous task of taking charge of the 334 undergraduate curriculum reform at HKU, initially serving as Chairman of the Steering Committee on Undergraduate Curriculum Reform and subsequently, in 2007, as Pro-Vice-Chancellor and Vice President (Teaching and Learning). One of the first things I did was to talk to a number of colleagues in different Faculties and find out what they had been doing in their teaching of which they were very proud.

I was introduced to the Mingde project in the Faculty of Engineering by Professor George Tham and Professor Peter Lee. At the time, they had already completed the Mingde Building (明德樓), a primary school, in the Guangxi province in 2005 and the Gewu Building (格物樓), a dormitory for the Rong Shui Vocational Training School, also in the Guangxi province, and they were in the process of rebuilding Zhengdong Jie Kindergarten in Sichuan after the earthquake in 2008. This immediately struck a chord with my conception of learning: that the boundary between the so-called "formal" learning in the classroom and the "informal" learning outside the classroom is artificial and must be broken down, and that a curriculum should be reconceptualized as "the totality of students' learning experiences". I was very excited, as well as impressed, when I saw this actually being realized in the Faculty of Engineering!

In recent years, there have been a growing number of universities, both locally and internationally, which provide opportunities for students to engage in field projects outside the classroom. However, most of them have treated these learning activities as extra-curricular, which by definition, is something students do outside their "formal" curriculum, and very often, something they do if they are interested and when they have time. What makes the Project Mingde stand out from the rest is its integration with the "formal" curriculum and classroom learning, and its underlying conception: to educate the next generation of engineers through involving them in the actual planning, design and implementation of building projects. In the new undergraduate curriculum at HKU, we call this "experiential learning".

Why is "experiential learning" such as the Project Mingde so important? In classroom situations, or in textbooks, problems are typically well-defined, and there is a solution to each problem, which are usually assessed as right and wrong by professors. In real-life situations, problems are typically ill-defined, and often there is no perfect solution to a problem. In addition, problems are situated in contexts in which multiple factors impinge on decision making processes. Hence, when students are put in real-life situations, they are completely lost. Consequently, they are criticized by employers for lacking problem-solving capabilities.

In real-life situations, identifying and tackling problems typically require a broad interdisciplinary knowledge base on which we can draw to make informed decisions.

We need to go beyond technical considerations and take into account all the contextual factors, including social, cultural, economic, and political factors, as we identify and define the problems and work out a way to address them. We also have to come to the realization that not all problems have a perfect solution, and that the solution of one problem often gives rise to others. By engaging students in real-life projects in tandem with the learning of theoretical knowledge, we enable students to put theoretical knowledge to test, to gain a deeper understanding of theories and, most importantly, come to a new understanding and formulate their own theories. It is also in these situations that students develop their core values and generic skills which will enable them to respond

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effectively and responsibly in a rapidly changing world.

To understand better the underlying conceptions of the project and the students' learning, I conducted interviews with two Engineering colleagues, Dr Guo Dajiang and Professor Peter Lee, and 6 undergraduates and 6 graduates who were, at the time, still involved in the project. I also had the opportunity to do a site visit at the Opening Ceremony of the Zhengdong Kindergarten in Sichuan. The interview data with students and graduates provided very rich accounts of how they were highly motivated to address real-life problems through searching for and coming to grips with technical knowledge and engaging in discussions with their peers, their professors, and engineers and architects who were our alumni, and how they came to the realization of the way social, cultural, economic and political factors impinged on the highly complex implementation processes. Most impressively, the students and graduates all concluded that the learning experiences had enabled them to reflect on the attributes that they must have in order to become an engineer who is socially responsible and who can contribute to making the world a better place to live in.

My interview with Dr. Guo and Professor Lee was a humbling process: they outlined their team's thinking behind the choice of projects, selection of sites, and the construction plans and designs, all motivated by how they could best help the under-privileged and how they could help students not only to acquire technical knowledge but to develop the core values of a fair, just and caring society. They also provided a moving account of how, together with the students, they dealt with the adverse working conditions, how they guided students to come up with their own solutions to problems, and how they provided opportunities for students to move from a peripheral participant to a full participant.

The implementation of the Project Mingde has involved not only a team of colleagues from the Faculty of Engineering, but also our professional alumni in engineering and architecture, who have been giving up their semester breaks and holidays to provide on-site support to the students. Some even donated money to support the various projects. The Lee Hysan Foundation also supported the travelling expenses of our students.

I have given keynotes in numerous international conferences on the undergraduate curriculum reform at HKU, and invariably, the part on experiential learning, illustrated by the Project Mingde, impressed the conference participants no end, and put HKU at the forefront of curriculum innovation!

I want to take this opportunity to pay a special tribute to, amongst many others, Professor George Tham, Professor Peter Lee, Professor Albert Kwan, Dr. Guo Dajiang, Dr. Ray Su and Dr. Nick Yeung, who is our honorary university fellow and fondly referred to as Uncle Nick by the students, and Professor Mak Chai Kwong. Their work on Project Mingde in the past ten years is a shining example of how a university should educate the next generation of professionals. I want to say to them, "you have done HKU proud!"

Amy B M Tsui
Chair Professor, Faculty of Education
Former Pro-Vice-Chancellor (Teaching and Learning) (2007-2014)
Jan 2016

蒙兆禧

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2009年初，有一次跟雷震寰教授會面，得知教授正為明德工程的正東街幼兒園重建項目提供義務顧問工作。當時覺得好有意思，便主動向雷教授提出參與的要求。不到一個月，便收到教授電話相約在香港大學開會。在會中認識了項目負責人郭大江博士。郭博士詳細解釋了項目的背景及現況，對於我這樣一位離開了專業兩年多，經已非常技癢的人來說，這份差事實在是再好不過了。就這樣，我便展開了兩年多的義務工作。其間，有多次是星期五下課後便去機場與雷教授、郭博士及志願同學滙合。我們漏夜乘坐飛機前往四川，大約要到凌晨才抵達成都，再轉乘樂師傅的小汽車到崇州市，車程大約一小時。星期六、日開會，至星期日下午回港，跟著是一連串設計修改的工作。我自從轉任大專教職後，休養生息了好一段時間，突然面對如此緊湊的工作編排，令自己的生活變得份外充實和有意義。

我最初的工作主要是為學生的設計方案提供意見，對於一位老師來說，這當然沒有難度。直至2009年中，郭博士一次來電，告訴我由於地方政府修改了地界，故必須在短時間內重新設計，並邀請我提交方案。我沒有半秒思量便說「好！」。當時眼前只看到一個可以發揮的機會，其他什麼也沒多想，一種莫名的興奮便驅使我馬上答應。隨後，我立即找了一位以往教過的學生協助繪畫電腦立體圖，他是Walter（黃霆匡），他當時正在大學進修，可騰出時間協助。幸得Walter的相助，我便可以專心設計及做模型，結果在一個多月內完成了一個初步設計方案，提交給了郭博士。最終，正東街幼兒園選擇了我們的方案，令我感到十分高興和榮幸。隨之而來的工作是深化初步設計方案，之後才可以交給設計院進行審批和投標程序。期間我用了不知道多少個晚上及周末在書桌上繪畫草圖，再將設計輸入電腦。長時間的坐在書桌前工作，結果使得腰部勞損，痛楚不堪。做過物理治療也無效。後幸得梁秉中教授指點，教我幾套醫冶腰痛的伸展運動。我照他吩咐做，不知不覺腰患便消失了。回想整個設計過程，老實說，這確是一個十分不容易的設計項目。

首先是地盤的位置。一般來說，大多數在城市裏的建築物是聳立在街道兩旁，所以面向大街的一方，便理所當然地成了正立面。但是，幼兒園並不是座落在正東街上的，整個地盤只有一條六米闊的消防通道連接著正東街。餘下的地盤邊界被舊的坡頂屋和現代的石屎樓房重重包圍。所以她的位置十分隱蔽。我的回應是將建築物向後移，形成一個小廣場。一方面可供家長和學生一個停留的空間；另一方面提供一個距離，在擠壓的環境中突顯建築物的正立面，讓小朋友看清楚學校的臉。我們特別下了很多工夫處理這個立面，希望用繽紛的色彩來成為立面。郭博士和我花了很多時間在當地搜尋既普遍、又色彩豐富的物料。多番尋找，結果找到一種50 cm x 50 cm的小瓷磚，是當地生產的，而且有多種顏色。由於價錢十分便宜，店舖通常都放在不顯眼的一角。回港後，我便努力嘗試用這簡單的小瓷磚編織圖案。幸好有阿包(方家麟 - 他是我曾教過的一位已畢業同學) 拔刀相助，付出他工餘的時間，利用電腦嘗試好幾十個不同的排列方法，才選擇了

第二，是地形的問題。由於地盤處在舊建築羣內，而且經歷了不同時間的發展，不規則的地盤邊界訴說了地盤的歷史。如此不規則的地形實在難得一見。她不但形狀不規則，而且還有一條「小蠻腰」，連接起地盤南北兩個置在不同軸線的部份。總的來說，她是活潑的座落在正東街一個不起眼的一角。當時我覺得崇州市是一個典型的發展中城市，跟大部份迅速現代化的城市相同，普遍的建築都是不加思索的鋼根水泥盒子，沿著標準化的方格式規劃發展。所以，我不但沒有抗拒她這種「無序」的場所特質；相反，我利用她不規則的地貌提供了操控形體的參數——利用基本的幾何形體據地盤多變的軸線建構起來，產生出跟地貌呼應的獨特形體。規規矩矩的幾何形構成不規則的整體。目的是讓她活潑的本質在東正街不起眼的一角展現出來。她活潑的本質與正東街兩旁標準化的發展產生強烈對比。另外，這條「小蠻腰」將地盤分為南北兩個部份，應該如何將兩部份連起來呢？近正東街北面的部份，我放置了兩大小不同的正方體

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及一個圓椎體，分別用作行政大樓、特別教室及禮堂(可用作音樂室)　；而南面部份是一個長方體，主要用作課室用途。中間的「小蠻腰」部份成了一條橋。這條橋是一個半開放的有蓋空間，可當作小朋友的活動空間；同時，也是一個連接南北部份的過渡空間。

第三，設計是不斷去解決問題，但同時又創造出新的問題，帶來了新發現和喜悅。由於不同的幾何形依據著地形的不同軸線連結起來，在兩個不同形體相連的部份產生了混形的空間劃局。例如兩個在不同軸線上的正方形，連結起來後，在兩者之間所產生的是一個新的多邊形——它一部份互相平行，另一部份卻互相偏離。在幼稚園內，當小朋友漫遊於兩方形之間、方與圓之間、開與閉之間，希望藉著這些新的空間體驗，讓小朋友瞥見另一種可能性。其實，這些不規則的混形空間需要大量的時間精力使其合理化，小心翼翼的將不規則的布局好好規劃，務求設計可合理地被使用。另外，北面的兩個正方體結合起來，由於體積相對大，雷教授亦給予了寶貴的意見，認為室內中間的位置難以得到足夠的自然光，提醒我需要解決這個問題。正如中國傳統的方形合院式建築，在其中間的天井提供了一個室內的室外空間。於是我在兩個方形的相連部份加插了一個天井，穿越了三層的天花和樓板，天井像盛滿陽光的容器置在兩方形之間，大大改善了空間的質素。

第四，由於地盤的面積相當有限，而幼兒園需要大量的上課空間，加上六米闊消防通道的要求，餘下的户外活動空間並不足夠，對於國內的幼兒園來說，覆蓋率實在太高了。為了解決這個問題，我嘗試在幾方面着手。首先是前面提到將整個建築物從正東街一方向後移，得出一個小小的廣場讓小朋友能看清楚校舍的正面及避免給人壓迫的感覺。而且，四川多雨跟香港相似，我因此借用了小時候的經驗，就是「雨天操場」，小時候每每下雨天，我們都會躲到「雨天操場」玩耍。所以幼兒園的一樓中間位置被升起了，騰出空間作雨天操場，給小朋友一個全天候的活動場所。而在「小蠻腰」上的橋，亦刻意加闊，便可用作較小型的全天候活動場所。由於香港地少人多，人們都珍惜空間。所以，我借用了另一個小時候的記憶是天台操場，這可能是其中一個本土的集體記憶。它可以追溯到現代主義的鼻祖柯布西耶（Le Corbusier），他利用鋼根水泥建造他設計的建築，並提倡新建築五點(Five Points of Modern Architecture)，其中一點便是屋頂花園。我努力將兩個屋頂上樓梯及其他功能部份集中在一起及放置在一端，好讓餘下的空間成為小朋友的活動場所。每想像到小朋友在晴天的早上做早操，崩崩跳跳的景象，便會喚起童年時愉快的學校生活的記憶。

建築不單是解決問題，還有一個重要的目的，就是探索表現的方法，通過形體及物料的操控，去界定空間——就像杯中的虛空一樣，要通過杯壁的塑造才能成器。再設定光線進入虛空中，直接給他者空間的經驗。在設計時，我渴望將小小的空間變得豐富，希望帶給小朋友不一樣的經驗。我將其中一條樓梯設置圓與方形的重疊位置上，使連接上下的樓梯遊走於圓椎體的內與外、方與圓之間。讓小朋友用眼睛、身體去體驗不同空間的可能性。另外，為了連　接南北兩部份，我把「小蠻腰」上的橋直接穿越圓形的音樂室，在虛空的音樂室的上方成為連接南北方向的重要通道。而且在圓形的天花上開了兩個扇形面的天窗，讓陽光進入音樂室的虛空，使這片原本靜止的虛空活化起來，隨著時間而變化。歌聲、躍動、陽光交織出一片不斷變化的空間。希望以上種種都會成為小朋友們長大後的美好回憶。

最後，多謝正東街幼兒園選擇了這個方案，感謝郭博士對本人的信任及雷震寰教授的寶貴意見和鼓勵，還有所有同學對工程的付出。

蒙 兆 禧

祝願正東街幼兒園同仁身體健康和生活愉快

蒙兆禧
二零一六年三月十七日

Vinco Mung

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In early 2009, during a meeting with Professor Lui Chun-wan, I was notified that Professor Lui was working with Project Mingde on the voluntary consulting work of Zhengdong Jie Kindergarten reconstruction project. It was very impressive and therefore I asked Professor Lui if I could join the project team. In less than a month, I received a phone call from Professor Lui for a meeting at the University of Hong Kong. In the meeting, I got to know Dr. Guo Dajiang, the person-in-charge of the project and he explained the background and the current situation of the project in details. As an architect who has left the architectural profession for over two years, this project was certainly a great opportunity for me to practice again. At that time, there were a few short trips to Sichuan for preparation. I joined Professor Lui, Dr. Guo and other student volunteers at the airport after Friday lecture, taking the midnight flights to Chengdu ,and then an hour by rented car to Chongzhou. We had meetings on Saturdays and Sundays and flew back to Hong Kong on Sundays afternoon, followed by a lot of design and amendment works. After switching job to teach in college and enjoying a slow-paced life for quite a while, such busy working schedule enriched my life and made it meaningful.

My first job was to review and comment on student's design proposal. It was an easy job for a teacher like me. Until mid-2009, Dr. Guo told me that as the local government adjusted the site boundary, we had to submit the new design proposal in a limited time. Dr. Guo invited me to work on the design proposal. I didn't even think for half a second before replying with a "Sure!". I thought it was a good opportunity for me to apply my professional knowledge on this project. That's why I didn't ponder much and accepted the invitation with excitement. Later, I asked one of my past students, Walter Wong, to assist in 3D drawing. He was studying at the university at that time and so he had time to offer help. Thank you for his help and I could focus on the design and modeling work. As a result, we finished a preliminary proposal in about a month and submitted to Dr. Guo. I felt very delighted and honoured that Zhengdong Jie Kindergarten adopted our proposal. The follow-up work was to further develop the preliminary design and prepared a submission to the design institute for approval and tendering. To finish the drawings, I spent numerous nights and weekends on the desk and transferred the drawings to the computer. Sitting for a long time given me a lumbago which was very painful. Physiotherapy was not effective at all. Luckily, Professor Leung Ping-Chung taught me a few sets of exercise for treating lumbago. After doing those exercises, it worked well for me and my back pain was gradually gone. To be frank, when I look back on the design process, Zhengdong Jie Kindergarten's project was really a tough job.

Firstly, there was problem with the location of the construction site. In general, most of the buildings in urban district is placed at both sides of a street. Thus, the side of building facing to street is called facade. However, the construction site is not exactly located on Zhengdong Jie, instead, only a 6-metre-wide fire access is connected to Zhengdong Jie. The remaining parts of the site is surrounded by old buildings and modern concrete buildings. Therefore, the location of the site is rather covert. To deal with this problem, I decided to set back the main building from the street, providing a small square for parents and students to stay in and at the same time creating a distance to stand out the facade of the building for the children to see the school, despite of the crowded situation of the street. We paid a lot of efforts on the front facade, turning it into a colourful one. To achieve the goal, Dr. Guo and I tried very hard to look for a common and colourful building material in the local market. After searching for many times, we found a locally produced colourful tile, with the size of 50 cm × 50 cm. As this type

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of tile is inexpensive and it was placed at the hidden corner, therefore it was hard to discover. After returning back to Hong Kong, I tried to figure out the best colour combinations of the tile to form a pattern. Fortunately, Bau (Fong Ka Lun, one of my graduated students) joined our team and spent his spare time to help us to demonstrate the colour combination on the computer. After trying tens of combinations in over a month, we finally found one which was suitable for the kindergarten's front facade.

Secondly, there were problems about the topography of the construction site. As the construction site is located in an old architectural area and has been undergone development at different times, the site boundary is irregular which shows its historical changes. Such irregular topography is not common. Not only the shape is irregular, and it also has a "slim waist" connecting the northern and southern parts. Overall, it was located energetically at a inconspicuous corner of Zhengdong Jie. At that time, I thought that Chongzhou City was a typical developing city, just like a majority of cities that underwent swift modernization, generally steel bars and concrete were used as major construction materials for structures, following the standard formula in planning and development. Therefore, I did not resist the disordered characteristic of the area. Contrastingly, I made use of the physical parameters from the irregular topography to make the form, laying basic geometries with respect to the various axes, in an attempt to produce a unique form which can echo the topography. Regular geometrical forms are constituted the whole of the irregular form, in purpose to show its lively nature at an obscure corner of Zhengdong Jie. The lively nature and the standardized development at both sides of Zhengdong Jie have a strong contrast. In addition, the "slim waist" divides the site into two parts, north and south, how should the two parts be linked together? For the part closer to Zhengdong Jie north, I used two cubes with different sizes to accommodate administrative rooms and special classrooms, and a cylinder to accommodate an auditorium (can be used as a music room); while the southern part is a cuboid, which is mainly used as classrooms. The "slim waist" becomes a bridge. The bridge is a transitional area connecting the northern and southern parts; at the same time, it is a semi-open covered area for activity outside the classroom.

Thirdly, design is a process to solve problems constantly, but at the same time create new problems, from which brings new discoveries and delight. As different geometrical forms coming together in accordance to axes generated from the topography, the part connecting two different forms is a hybrid space. For example, interlocking two squares on different axes a new polygon is produced. Part of the polygon is parallel one square, and part of it deviates from another square. In the kindergarten, when children were wandering the hybrid space between two squares, between square and circle, open and close, they would experience the new possibility of space. In fact, these irregular hybrid spaces required much time and effort to make them rational, in order to let the irregular layout design could be used reasonably. Besides, the two cubes in the north were connected together, due to their relatively large volume, Professor Lui also gave us precious comments, stating that the centre of the indoor area may not be able to obtain sufficient natural lighting, reminding me a need to solve this problem. Just like the traditional courtyard design, the patio at the centre provides an outdoor area within the building. Therefore, I added a patio in the transitional area of the two cubes, passing through three layers of ceiling and floor, the patio is just like a container filling of sunlight between the two cubes, which greatly improves the quality of space.

Fourthly, the site area is very limited, but the kindergarten

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had a great demend for teaching and activity spaces. Also, 6-metre-wide fire access was required and the remaining outdoor area was insufficient. In comparison with other kindergartens in the mainland, such site coverage is too high. To resolve this problem, I tried to work in a few aspects. The first solution was setting back the whole building mentioned above backward from Zhengdong Jie, so as to give out a small square for the children to see the front facade of the school clearly as well as avoid having constrictive feeling. Besides, the weather in Sichuan is as rainy as in Hong Kong. By taking my childhood experience, we usually played in the covered playground during rainy days. Therefore, the area in the middle of ground floor was lifted up for making room of a covered playground in order to provide an all-weather activity area. The bridge on the "slim waist" was also widened intentionally for making room for all-weather activity area. As Hong Kong is densely populated, people treasure space very much. Therefore, I was inspired by a childhood memory that we usually played in the rooftop playground during rainy days. It could be traced back to Le Corbusier, a master of modern architecture, who made use of reinforced concrete in his design, and he also advocated "Five Points of Modern Architecture" in which one of the highlights was the rooftop garden. I worked hard to put the two staircases on the rooftop and other functional parts together at a side, so that the remaining space could become recreational area for children. Every time when I thought of children doing exercises in a sunny morning, the energetic and active scene would recall my childhood memories of a happy school life.

Architecture is not only for solving problems, but also have an important aim, which is an exploration of expression methods, through the manipulation of forms and materials to define space, just like making of a cup, the emptiness of the cup which is created by making the cup wall. The setting of incoming sunlight into the emptiness will allow people to experience the space. During the design stage, I was eager to make this small area plentiful, bringing a different experience to the children. In the overlapping area of the circle and square, I designed a staircase which connects the upper and lower areas, surrounding the inside and outside of the cylinder and also in between the cube and cylinder. This could enable the children to use their eyes and ears to experience the possibility of various spaces. Besides, in order to connect the southern and northern parts, I designed a bridge (on the "slim waist") directly passing through the circular music room, and that becomes the main aisle connecting the north and south on top of the hollow music room. Moreover, the oval ceiling has two sector shaped skylights, which allow incoming sunlight to differentiate the emptiness against time. Singing, movement and sunlight merge together to form an ever changing space. Hope that all of the above would become their wonderful memories of school life in the kindergarten.

Lastly, thank you Zhengdong Jie Kindergarten for choosing this proposal, thank you Dr. Guo for his trust in me and Professor Lui's precious opinions and encouragement, and all the students' contributions to this project.

Wish that everyone of Zhengdong Jie kindergarten good health and a fruitful life.

Vinco Siu Hei MUNG
17th March, 2016

正東街幼兒園

Zhengdong Street Kindergarten

災後重建

Reconstruction work

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明明德-參與震後重建

Display of Illustrious Virtue - Partaking in post-quake reconstruction

■ 地震對四川建築物的破壞
Quake-damaged buildings in Sichuan

1.1 四川大地震

這是中國自唐山大地震以來，破壞力最大，傷亡最慘重的地震。黎克特制8級的地震導致接近7萬人喪生，約38萬人受傷，近2萬人失蹤，對當地的住房、校舍、交通、水利、衛生、生態等造成極大的破壞及影響，震碎了不少四川居民安定舒適的生活。除了各地不同形式的募捐活動，亦有大批志願者，包括救援隊伍、民間團體及專業人士等，從國內及世界各地調動了不少人力物力至災區參與救援及重建工作。

「老師，我們聞知四川發生了大地震，「明德工程」會在四川參與重建工作嗎？有需要幫忙的地方嗎？」

不少曾參與過「明德工程」的學生及畢業生在聽到四川大地震的消息後，都不約而同地聯絡香港大學土木工程系的老師們，詢問「明德工程」會否參與震後的重建工作，希望在捐款以外，也能透過自己在建設方面的能力，為重建出一分力，重新建立四川的房屋及校舍，讓居民能盡快回復安居樂業的生活。

老師們非常明白學生及畢業生對震後重建的熱誠，也很欣慰「明德工程」的精神已在學生之間萌芽，但因參與重建工程並非一件簡單事情，而須視乎其重建項目的性質、資源配套及聯系網絡等眾多客觀因素而決定，所以老師們便著學生及畢業生耐心等待，而大學則會積極尋找參與重建的機會，以盡快讓學生及畢業生能夠參與其中。

1.1 The Sichuan earthquake

On 12 May 2008, a massive earthquake hit Sichuan.

It was the most destructive and lethal earthquake to have hit China ever since the Tangshan earthquake. Measuring eight on the Richter scale, it killed almost 70,000 people and injured about 380,000, with about 20,000 people missing. It caused major damage to residential and school buildings, transport, water resources, hygiene and ecology in affected areas, shattering the stable and comfortable lives of many Sichuan residents. Aid came in many forms: apart from worldwide donations and fund-raising activities, numerous volunteers including rescue teams, non-governmental organisations and professionals joined in the relief and reconstruction efforts, sending relief goods and manpower from within the Mainland and abroad to the disaster zones.

"Dear teachers, a massive earthquake has hit Sichuan. Will Project Mingde join in the reconstruction work? Is there any way we can help?"

When news of the Sichuan quake broke, many students and alumni who had participated in Project Mingde contacted their teachers in the HKU Civil Engineering Department to inquire if Project Mingde would join in the reconstruction work. They hoped that, apart from cash donations, they could contribute to the post-quake reconstruction work with their engineering knowledge to build new houses and schools in Sichuan, the residents would be able to resume to a normal life as soon as possible.

Their teachers in the department appreciated the students' and alumni's enthusiasm, and were heartened to see that the spirit of Project Mingde had taken root. But as a participation in the reconstruction was not a simple matter, as it hinged upon many factors such as the nature of the particular project in question, resource support and networking. The teachers suggested that they would wait patiently while the university was looking into the possibility of joining in the reconstruction.

1.2 關懷行動

在眾多參與震後重建工作的志願團體中，其中一間來自香港的註冊慈善組織為「關懷行動」。自1994年來，「關懷行動」一直擔當著聯繫香港各醫護人員和義工的角色，組成義務醫療隊伍前往內地，為貧困病患者提供免費醫療服務，亦同時培訓當地的醫護人員。當時「關懷行動」在四川省其中一個工作點就是在崇州市第二人民醫院，所以對崇州市特別關心。

地震後，「關懷行動」主席梁秉中教授聯同其他香港著名醫生百忙之中抽空帶領醫療隊伍多次分批到達災區進行震後救災工作，深入受災嚴重的地區為超過200災民診治，在救援期間也不忘慰問了災民，了解災後最需要的醫療救助，也為災民採購藥品及康復器材。「關懷行動」因獲周植先生家族捐獻以作支持災區的重建，所以救援過程中也特別留意災後需要的重建工作。

1.2 Operation Concern

Among the many post-quake reconstruction voluntary groups, one was Operation Concern, a registered charity organisation from Hong Kong. Ever since 1994, Operation Concern had been bringing together medical practitioners and volunteers in Hong Kong to offer free medical services to poor patients on the Mainland and free training for their medical practitioners. At the time, one of its operations was based in Chongzhou No.2 Hospital, and hence it was particularly concerned for the city.

After the quake, Professor Leung Ping-chung, Chairman of Operation Concern, together with other veteran doctors from Hong Kong, took time out from their busy schedules to lead batches of medical teams to offer disaster relief in the stricken areas. They provided treatment for over 200 victims in the most badly affected areas, offered them emotional support, worked out what kind of post-quake medical help was the most needed, and purchased medicine and rehabilitation equipment for the victims. As Operation Concern had received donations from Mr. Chow Chik's family in support of reconstruction of the stricken areas, it also paid particular attention to what kind of reconstruction work was most needed for the area during its rescue process.

■ 已拆卸幼兒園的工地
Site of demolished kindergarten

1.3 參與重建

在多次到災區的觀察中，梁教授了解到四川災區在重建學校方面有很大的需要，所以希望將周植先生家族的捐獻用作修建一所中學，但因修建中學資金需求較大，所以轉為考慮其他重建項目。機緣巧合下，「明德工程」發起人香港大學土木工程系畢業生楊澍人博士夫婦了解到「關懷行動」梁教授有在災區重建學校的意願，遂建議與香港大學土木工程系系主任關國雄教授、前系主任李啟光教授和培訓主任郭大江博士商討合作重建學校的可行性。交談中，雙方均認為須先到四川崇州市瞭解，於是郭博士隨梁教授和捐款人代表羅永康先生一起到四川崇州市作考察，並與當地政府部門官員和學校負責人會面。楊博士及後也再次與梁教授到訪崇州市考察，當地政府介紹了一項重建專案「崇陽鎮正東街幼兒園」作考慮，規模較適合「明德工程」及「關懷行動」參與。

■ 助建小組探訪臨時的正東街幼兒園
Project Team visiting the temporary campus of Zhengdong Jie Kindergarten

1.3 Partaking in the reconstruction

During his many visits to the stricken areas, Professor Leung recognised a great need for the reconstruction of schools in the area, and hence hoped to deploy the donations of Mr. Chow Chik's family to build a secondary school. Since building a secondary school would involve more resources, so other reconstruction options were considered instead. When Dr. S.Y. Yeung, a HKU Civil Engineering alumnus, and his wife Mrs. Lorene Yeung, two founders of Project Mingde, learned of Professor Leung's wish to reconstruct a school in the stricken area, they suggested him to meet with the HKU Civil Engineering Department to explore the possibility of joint efforts in the reconstruction. After meeting with Prof. Albert K.H. Kwan, Head of HKU Civil Engineering Department, Prof. Peter K.K. Lee, former Head of Department, and Training Officer Dr. Guo Dajiang, it was agreed that a trip to Chongzhou, Sichuan was necessary. Dr. Guo accompanied Professor Leung and donor representative Mr. Law Winghong on a field visit to Chongzhou where they met with local government officials and school management. Later Dr. Yeung and Prof. Leung visited Chongzhou again on which occasion the municipal government proposed the "Zhengdong Jie Kindergarten" reconstruction project for their consideration as its scale was more suitable for the participation of Project Mingde and Operation Concern.

為使周植先生家族的捐獻用得其所，梁教授等特別到災區現場了解這個幼兒園重建項目的必要性和逼切性。根據視察了解所知，在崇州幼兒園入托的難度不在求醫或找房子以下，因崇州很多家庭的父母外出工作，家中較難騰出人手照顧幼兒，很多父母於是希望把幼兒交給幼兒園托管。「崇陽鎮正東街幼兒園」在地震中雖然沒有老師或幼兒傷亡，內部的設備全遭破壞，幼兒災後只能在艱難的板房環境中生活和學習。夏天板房內的氣溫高達攝氏36度以上，臨時簡易板房的建築材料因而會發出異味，對孩子的健康成長極為不利。而且，幼兒園板房由於地勢較低，排水系統不佳，每每在下雨後地面積水，幼兒上廁所、生活、活動等都極為不便。到了冬天，板房因位處空曠地段，風特別的大，灰塵也特別的多，幼兒容易生病。梁教授看到這樣的情況，認為這個項目很有重建的價值，能讓受地震影響的幼兒回到合適的環境上課及生活。

To ensure that the donations of Mr. Chow Chik's family were properly deployed, Prof. Leung paid a special visit to the stricken area to ascertain the necessity and urgency of this kindergarten reconstruction project. It transpired that the placement of children in a kindergarten in Chongzhou was no less difficult than seeking medical care and finding accommodation. As many parents in Chongzhou were working parents, they had difficulty taking care of their children. Many parents hence hoped to place their children with kindergartens. Although there were no casualties among the teachers or children in the quake for Chongyang Town Zhengdong Jie Kindergarten, all school facilities and equipment had been damaged. The children were left to live and learn in a rather hostile environment of prefabricated sheds. In summer, room temperature could reach as high as 36°C, and the resulting odorous emissions from building materials were harmful to the children's health. In addition, as the prefab sheds were built on a relatively lower level, its drainage was far from satisfactory. The place often became water-logged after rain, making it difficult for the children to visit the bathroom, walk about and engage in activities. In winter, as the site was located in an open area, the strong wind and dust could make the children fall ill easily. When Prof. Leung saw these conditions, he agreed that this project was very worthwhile. It would allow the quake-affected children to return to a proper living and learning environment.

■ 助建小組在課堂討論重建的可行性
Project Team discussing project feasibility in class

經過崇州市人民政府、「關懷行動」和香港大學土木工程系的再三考慮後，梁教授於2008年8月21日代表「關懷行動」與崇州市人民政府陳剛副市長共同簽署了援助重建崇州市崇陽鎮正東街幼兒園的協議書。協議書中特別註明了以下條文：

「為使這項重建工程具有更深刻的意義，邀請香港大學土木工程系師生和畢業生共同參加該項工程的全部過程。」

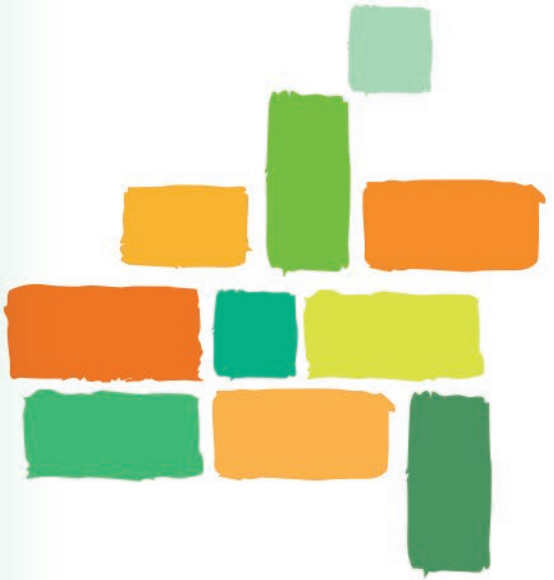
「明德工程」於是能正式參與四川震後的重建。

After careful deliberation by the Chongzhou Municipal Government, Operation Concern and the HKU Civil Engineering Department, Prof. Leung, on behalf of Operation Concern, signed an agreement in aid of the reconstruction of the Zhengdong Jie Kindergarten with Mr. Chen Gang, Deputy Mayor of the Chongzhou Municipal Government on 21 August 2008. A special clause in the agreement stated that:
"To give the reconstruction project a greater significance, the teaching staff, students and alumni of the Civil Engineering Department of the University of Hong Kong are invited to partake in the entire project."
Project Mingde thus became an official participant in the post-quake reconstruction of Sichuan.

第2章 Chapter 2

致知在格物-學習與考察

Study the Phenomena of Nature to Acquire Knowledge - Learning and Investigating



2.1 組建團隊

時間是整個重建項目最大的挑戰，為了使幼兒能早日回到健康的校園生活，「明德工程」需要在開學兩星期內招募足夠人手組成助建小組，準備於2008年9月中旬的中秋節假期動身到崇州市搜集設計資料，並視察當地環境，以便對該項重建工程展開初步工作。

得知「明德工程」將參與「崇陽鎮正東街幼兒園」的重建，11名土木工程系畢業生十分踴躍，率先自發組成了畢業生助建小組，於下班後回到香港大學與關教授，楊博士夫婦和郭博士會面，商討幼兒園重建項目的統籌管理工作。因這個項目的規模較以往「明德工程」的項目大，在城市中興建學校也較以往在鄉鎮興建複雜，牽涉到的範疇也較多，如建築、樓宇設備等，項目不能再單由土木工程專業的志願者完成，所以需要積極尋找相關專業人士參與其中，以求能集思廣益，取各專業之長完成重建幼兒園的項目。老師及畢業生的邀請得到各方專業人士的熱烈回應，大家都很希望能直接參與到項目中，以自己的專業為四川災後重建出一分力。在9月開學後，「明德工程」這項幼兒園重建項目也得到了同學積極的回應，土木工程系36名三年級同學自願組成了助建小組，與畢業生助建小組互相配合。

2.1 Building a team

Time was the biggest challenge of the whole reconstruction project. In order to help that the children could return to a normal school life as soon as possible, Project Mingde had to recruit sufficient manpower to form a project team within two weeks after semester began. The team had to visit Chongzhou in mid-September during the Mid-Autumn Festival holidays to collect data for the design, and to inspect the site and its environs to embark on the initial stages of work of the project.

Upon learning of Project Mingde's participation in the reconstruction of the Zhengdong Jie Kindergarten, eleven zealous Civil Engineering alumni quickly volunteered to form an alumni project team. They convened with Prof. Kwan, Dr. and Mrs. Yeung and Dr. Guo after work to discuss the co-ordination and management of the project. As the scale of this project was greater than all previous ones, and building a school in urban areas was more complex than building one in rural areas as it involved various other fields such as architecture and building services, the project could not be accomplished by volunteers in the civil engineering field alone; talents had to be pooled and professionals from related disciplines had to be actively engaged to join in the efforts. Invitations from teaching staff and alumni received a tremendous response from various professional disciplines; everyone hoped to participate directly in the project and contribute to the reconstruction of Sichuan with his own professional knowledge. After term started in September, Project Mingde also received an enthusiastic response from students. Thirty-six final-year Civil Engineering students signed up to form a project team to join forces with the alumni team.

■ 助建小組進行分組討論
Project team in small-group discussions

有幸得各參加者對四川重建的關心及熱心，「明德工程」才能夠在兩星期內為幼兒園重建項目組成這個由學生、畢業生、老師及其他專業人士的助建小組團隊，為重建工作奠下了最重要的基礎。

It was only thanks to the participants' concern and enthusiasm for Sichuan reconstruction that Project Mingde was able to form within two weeks a team consisting of students, alumni, teaching staff and other professionals for the kindergarten project, laying the most important part of the foundation for its reconstruction.

2.2 籌備視察

為設計工作搜集完善的資料，助建小組需要親身到四川校址作實地考察。可是，學生到當地視察的經費是一個不易解決的問題，小組原打算以興建明德樓及格物樓僅餘的考察基金去資助助建小組到當地視察，但往後的視察、滙報及監工等經費並不足夠。此時幸得「利希慎基金」大力支持。「利希慎基金」成立於1974年，致力推動本地一些意義深遠的的公益活動，主要支持教育、醫療及社會福利、藝術及文化、以及環保。基金專注於策略性的捐助，並填補主流慈善團體及政府資助未能覆蓋的層面。「明德工程」自開展以來，「利希慎基金」不時資助助建小組到國內現場視察，以讓工程能順利進行之餘，學生也能增廣見聞。這次得知「明德工程」參與四川的重建工作，基金也希望能讓更多助建小組成員能夠參與其中。「明德工程」十分高興能收到「利希慎基金」執行秘書雷競璇博士的勉勵信及慷慨捐助，得到了一筆足夠為有志到當地視察的學生提供經費的善款，這個好消息鼓舞了助建小組，為大家注了一支定心針，都期待能親身到四川參與考察。

2.2 Preparing for the study trip

To facilitate design work, the project team visited the school site in Sichuan to collect detailed information. But funding for the trip was falling short. The team could have used the research funding left over from the construction of Mingde Building and Gewu Building to finance the team's trip, but even so, it would not be sufficient for the ensuing and ongoing work of inspection, reporting and supervision. Fortunately the Lee Hysan Foundation offered timely financial support. Founded in 1974, the Lee Hysan Foundation supports local initiatives and projects that benefit the community, mainly in the areas of education, medical care, social welfare, arts and culture, and environmental conservation. The foundation focuses on strategic donations, filling in the gaps not covered by mainstream charity organisations and government subvention. Ever since the founding of Project Mingde, the Lee Hysan Foundation has on many occasions offered financial support for its members' trips to the Mainland to facilitate the smooth operation of the projects and to provide the right kind of exposure for the students. Upon learning of Project Mingde's participation in the reconstruction work in Sichuan, the foundation hoped for more members to be involved in the project. Project Mingde was very happy to receive a letter of encouragement and generous donations from Dr. Louie Kin-sheun, Executive Secretary of the Lee Hysan Foundation, which would cover the costs for the members' trips to the stricken area. This piece of good news boosted the morale of the project team and put their mind at ease while they waited eagerly for their visit to Sichuan.

2.3 到訪災區

2008年9月中旬，助建小組展開了他們第一次到崇州市幼兒園實地考察之旅。當天，幼兒園王曉燕園長熱情地到機場接機。是次考察主要是到幼兒園的原址瞭解情況，拜訪崇州市建築研究勘測設計院，參觀成都市機關第二幼兒園和金蘋果晶藍半島幼兒園及調查都江堰受地震破壞的房屋。

■ 助建小組第一次到崇州市幼兒園
Project Team' s first trip to Zhengdong Jie Kindergarten

在這次考察中，助建小組嘗試了解幼兒園的原貌。「崇陽鎮正東街幼兒園」建於1928年，有著良好的幼兒教育傳統，有近400名幼兒，共分為10個班。在大地震中，2,700餘平方米的校舍遭到嚴重損壞，幼兒不能再在原校舍內繼續上課。因重建的經費有限，幼兒園當時並沒有被納入當地政府的第一批災後重建計劃之中，為了令幼兒能於震後繼續學習，幼兒需要暫時搬至原行知中學操場上的臨時板房校舍上課。老師與家長雖然希望幼兒能盡快回到穩定安全的環境下學習，但也知道重建校舍這個願望並不能在短時間內實現。「關懷行動」及「明德工程」的參與，為他們點燃了新的希望。重建計劃初步希望配合幼兒園的發展需要，按12個班的標準設計，約有450名幼兒入讀，王園長更希望把重建的規模擴大至15個班，以照顧更多幼兒的需要。因為重建項目預算龐大，助建小組須待資金及土地資源確定後，方能落實重建的規模。

2.3 Visiting the stricken areas

In mid-September 2008, the project team embarked on their first journey to the kindergarten in Chongzhou for a site investigation. They received a warm welcome from Ms. Wang Xiaoyan, Principal of the kindergarten, at the airport. The main purpose of this visit was to inspect the original site of the kindergarten, visit the Chongzhou Institute of Building Survey and Design, tour Chengdu Municipal No. 2 Kindergarten and Jin Pingguo Jinglan Bandao Kindergarten, and investigate the buildings damaged by earthquake in Dujiangyan.

During this visit, the project team tried to learn more about the condition of the kindergarten before the earthq uake. Founded in 1928, Chongyang Town Zhengdong Jie Kindergarten had a proven track record in early childhood education. It had 400 children enrolled in ten classes. Its premises with a total area of 2,700 sq. m. was severely damaged in the earthquake which meant the children could no longer have classes in the original premises. As funding for reconstruction was limited, this kindergarten was not included in the first batch of the government's post-quake reconstruction plan. For the children to continue with their learning, they were moved to a temporary campus of prefabricated sheds on the playground of the former Xing Zhi Secondary School. Although both teachers and parents were hoping for the children's return to a safe and stable environment for classes, they understood that their wish for reconstruction could not be realistically achieved in the near future. Yet, the participation of Operation Concern and Project Mingde gave them new hope. In keeping with its development needs, the initial plan for the reconstruction was to design for twelve classes catering for 450 children. Principal Wang even hoped to expand the scale of reconstruction to fifteen classes to meet the needs of more children. As the budget for the reconstruction was large, the scale of reconstruction had yet to be finalised pending the confirmation of the availability of funding and land resources.

■ 「正東街幼兒園」原貌
Zhengdong Jie Kindergarten before the earthquake

■ 「正東街幼兒園」震後情況
Zhengdong Jie Kindergarten after the earthquake

■ 操場上的臨時板房校舍
Temporary campus of prefab sheds on the school's sports ground

■ 助建小組為幼兒園師生放天燈祈福
Project team releasing sky lanterns to pray for good fortune for teachers and children of the kindergarten

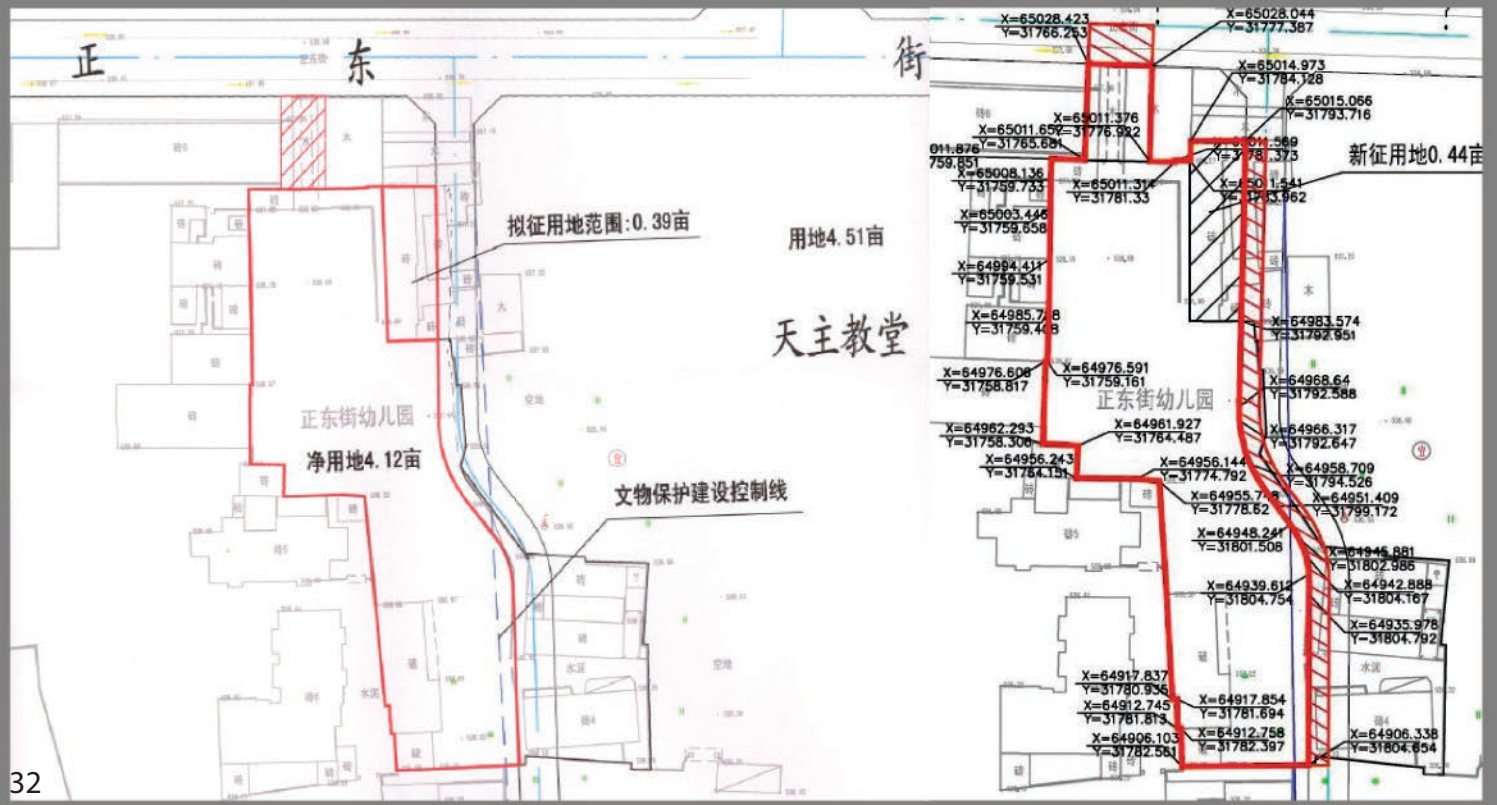
■ 參觀成都市機關第二幼兒園和金蘋果晶藍半島幼兒園
Visit to Chengdu Municipal Authority No. 2 Kindergarten and Jin Pingguo Jinglan Bandao Kindergarten

此次行程也令助建小組對國內幼兒園的要求及概況，加深了認識，如同類幼兒園的規模、師生所需的生活空間、建築規範中每個房間、禮堂及工作間等的實際作用、幼兒的日常生活流程、幼兒園原址的地形及震後情況等。助建小組搜集了不少實用的資料，對初步設計有一個較清晰的方向。

這次考察中，助建小組也發現了兩個問題：第一，若明德工程需要參與這個項目，助建小組便須與當地的設計院合作，並把製作的施工圖交其圖簽，但「明德工程」未能與任何設計院達成合作協議，助建小組之後需再與崇州市的設計院接洽以商討合作的空間。第二，是幼兒園原址面積約2,700平方米，地形狹長，若按現行國家標準，只能建6個教學班的小型幼兒園。後來經過王園長的不懈爭取，規劃局承諾將原址重建的用地面積擴大至2,900平方米，梁教授隨後亦與教育局王學斌副局長達成口頭協議，暫定重建規模為12個班，再由教育局與建設局協商如何放寬對重建用地面積的要求。

This trip enhanced the project team's knowledge on the requirements and overall conditions of mainland kindergartens, e.g. the scale of similar kindergartens, living space needed by teachers and children, the practical functions of various rooms, the auditorium and work spaces as prescribed by the building requirements, the children's everyday routines, the topography of the former site of the kindergarten and its post earthquake condition. The team collected a lot of practical information which gave them a clearer direction for an initial design.

During this investigation, the team also identified two problems. First, if Project Mingde was to take part in this project, it would have to collaborate with a local design institute to facilitate the approval of the construction drawings it would have made. However, Project Mingde had not yet reached an agreement with any design institutes, and hence would have to convene with the Chongzhou Design Institute to discuss the possibility of collaboration. Second, the site of the former kindergarten was 2,700 sq. m. in total area. Given its elongated site shape, only a small-scale 6-class kindergarten could be built under current government standards. It was only after tireless negotiations on the part of its Principal Wang that the Planning Bureau undertook to expand the area to 2,900 sq. m. Prof. Leung later also reached a verbal agreement with the Deputy Director of the Education Bureau Mr. Wang Xuebin to provisionally plan for twelve classes for the reconstruction, while the Education Bureau and Construction Bureau would look into ways to relax the requirements for land use reconstruction.



■ 幼兒園地形狹長 (左: 放寬前的界線；右: 放寬後的界線。)
Elongated shape of kindergarten site (Left: boundary before relaxation of requirement; Right: boundary after the relaxation of requirement.)

2.4 積極學習

助建小組過去只擁有在廣西鄉鎮建設教學樓及宿舍的經驗，而且成員都是土木工程系的學生，因此助建小組對幼兒園建築設計規範的認識及當中的考慮因素並不完全掌握。為了讓幼兒能盡快安全地上課及享有更舒適的學習環境，在到崇州視察收集設計資料之餘，助建小組也跟從各專業人士努力學習不同的專業知識，以有效地設計出最合適的幼兒園。

幼兒園座落在崇州市中心，城市幼兒園的設計牽涉到很多建築學的元素，「明德工程」邀請了中文大學建築系雷震寰教授向助建小組面授建築規劃的要領，指導助建小組該如何收集資料進行建築設計。對助建小組而言，這是一個全新的學習領域，因土木工程系的課程內並沒有包含建築方面的知識，能從其他專業的角度考慮事情，同學的視野因而拓闊了不少。不單如此，曾參與明德工程的土木工程系畢業生也邀請執業建築師朋友向助建小組作出分組指導，能隨時發問，增加了助建小組學習建築學知識的管道。

2.4 Active learning

As the team's construction experience in the past involved only school buildings and dormitories in rural parts of Guangxi, and its members were all civil engineering students, they did not have a sufficient grasp of architectural design requirements for a kindergarten and related factors for consideration. Hence, apart from conducting fieldwork in Chongzhou, the team also learned diligently from professionals of relevant disciplines for an optimal design.

As the kindergarten was located in the city centre, its design involved many elements of architecture. Project Mingde hence invited Professor Lui Chun-wan of the Department of Architecture of the Chinese University of Hong Kong to brief the students on key elements of architectural planning, and guide them in data collection for architectural design. As their civil engineering curriculum did not emphasize on architectural design, it proved a whole new learning experience for the team members. It had certainly widened their outlook to be able to consider a problem from the perspective of another discipline. In addition, Project Mingde alumni also invited their architect friends to conduct small group tutorials for the team, which provided an additional channel for acquiring architectural knowledge.

■ 建築師向助建小組分享建築規劃要領及設計技巧
Architects sharing key elements of architectural planning and design skills with project team

雖然大學的課程有教授土木工程設計的知識，可是香港並不在地震區內，學生對抗震設計的認識並不深入。有見及此，郭博士特意為助建小組講解中國抗震的設計規範。不論捐款機構、當地政府及當地師生均認為安全抗震設計是整個重建工程的重中之重，助建小組必須對抗震設計有更深入的瞭解，才能為幼兒園作出最為合宜的設計。土木系亦安排了助建小組到內地進行培訓，如到中國建築科學研究院深圳分部接受由張金盛工程師講解國內最常用的工程設計軟件，以裝備助建小組的專業知識，加快幼兒園工程項目的設計效率。

Although they were taught civil engineering knowledge and design at university, as Hong Kong falls outside the quake zone, the students did not have an in-depth knowledge of earthquake resistance design. In view of this, Dr. Guo made a point of briefing the team on such design requirements in China. Whether it was the donors, the local government, or the teachers and students of the stricken areas, all unanimously agreed that safe quake-resistant design was paramount and should form the basis of all reconstruction work. Thus to enhance the project team's knowledge of quake-resistance for an optimal design, the HKU Civil Engineering Department arranged for the team to receive training on the Mainland; members of the team later attended lectures given by Engineer Zhang Jinsheng of the Shenzhen Branch of China Academy of Building Research on frequently-used engineering design software. It would equip the team with professional knowledge and boost the efficiency of the design work for the kindergarten project.

■ 中國建築科學研究院深圳分部張金盛工程師向助建小組講解工程設計軟件
Engineer Zhang Jinsheng of the Shenzhen Institute China Academy of Building Research briefing the project team on engineering design software

除此以外，助建小組亦向曾參與考察的建築設備工程師學習，根據正東街幼兒園的建築方案，建築設備工程師詳細地解答了建築設備設計上的各種問題，助建小組從中獲益良多，汲取了設備及機電工程上的知識。

Besides, the project team was also mentored by building services engineers who had joined in the site investigation. Based on the construction plan of Zhengdong Jie Kindergarten, building services engineers gave detailed explanations of various problems pertaining to building services design, equipping the project team with knowledge in building services and electrical engineering.

■ 建築設備陳炳祥工程師講解設備及機電工程的知識
Building services engineer Ir. Chan Ping-cheung tutoring students on building services and electrical engineering

助建小組其後也到當地進行了數次視察，包括到訪災區、考察幼兒園的原址、與當地師生交流、探訪其他幼兒園、視察震後房屋等。實地視察的目的，第一是為了學習當地幼兒園的設計及日常運作，瞭解當地幼兒園師生的需要，使幼兒園的設計除了符合國家的設計標準及抗震規範外，亦能切合用家需要。第二，重建幼兒園是「明德工程」的第一個在大城市的發展項目，助建小組需學習在設計中如何處理很多未曾接觸過的範疇，例如如何配合城市基礎建設、建築風格等。考察其間得到多個專業人士的指點，如邀請建築設備工程師陳炳祥先生一同考察崇州的建築設備及配套，在陳工程師的指導下，助建小組考察了幼兒園附近正東街和永康西街的市政共用設施狀況，包括雨水、污水排放系統、供水、供電、供氣和電話線等。在建築設計方面，助建小組也在專業建築師及當地居民帶領下考察幼兒園附近的建築，特別是川西民居的建築風格。

The team later made further study trips to the area. Its itinerary included visits to the stricken area, inspecting the former site of the kindergarten, consultation sessions with local teachers and students, visits to other kindergartens, and inspecting the condition of post-quake buildings. The purpose of the on-site visits was first to learn more about the design and daily operations of local kindergartens, and understand the needs of both teachers and children, so that the new design would match user needs apart from fulfilling government design standards and quake-resistant requirements. Secondly, the reconstruction of the kindergarten was the first ever urban project for Project Mingde, which meant the project team had to deal with problems in areas that were new to them during the design process, e.g. how to fit in with and complement the city's infrastructure and its architectural style. Fortunately they had the mentorship of many professionals during their study trips: Building Services Engineer Ir. Chan Ping-cheung was invited to inspect with them the building services and support facilities in Chongzhou. Under his mentorship, the team studied public utilities in Zhengdong Jie and Yongkang Xi Jie in the vicinity of the kindergarten, including storm water and sewage systems, water supply, electricity and gas supplies and telephone lines. Regarding architectural design, the project team studied the buildings in the vicinity of the kindergarten, and in particular the architectural style of residential buildings in western Sichuan in the company of professional architects and local residents.

■ 陳工程師與助建小組考察幼兒園附近的市政公用設施
Ir. Chan and the project team studying public utilities in the vicinity of the kindergarten

得到各方專業人士的悉心教導及指點，助建小組才能學習到設計所需的重點專業知識，以完成幼兒園的設計。

Under the mentorship of professionals from various fields, the team acquired crucial professional knowledge required for the kindergarten design.

第

Chapter 3

章

各展所長-幼兒園初步設計

Talents Put to Use - Initial Designs for the Kindergarten

3.1 初步設計

在重建時間緊逼的環境下，助建小組進行初步視察及學習後需在1個月內完成幼兒園的初步設計方案，以趕及在同年11月回到崇州向幼兒園師生滙報。助建小組一共分為三組，將所學習到的知識活學活用，在有限的時間內日以繼夜趕忙起草三個不同方案的設計。這次設計與過往「明德工程」的項目不同，設計方案是由建築概念帶動，先有了設計主題，才考慮設計規範及結構運算。起初助建小組因對建築學不熟練，雖然積極嘗試，但設計無可避免較為生澀，經過多番視察及各專業人士的協助，方案不斷改良。

3.1 Initial designs

Owing to time constraints, the team had to produce initial design plans within one month of their first visit, as they aimed to present the report to the teachers and children of Zhengdong Jie Kindergarten in November the same year. The team was split into three groups; each group responsible to draft a design proposal using their acquired knowledge. Different from previous Project Mingde designs, these design proposals were derived first from architectural concepts before design requirements and structural computations were considered. Initially, team members were unfamiliar with architecture, they encountered difficulties in designing. But after repeated field studies and with the help of various professionals, their design schemes continued to improve.

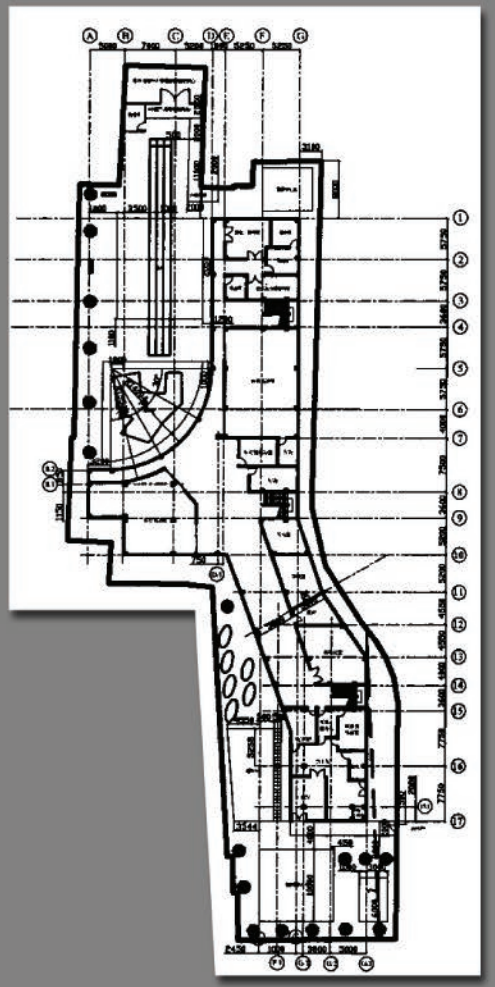
第一組同學的設計主題為「青苗」，寓意震後重建能為四川帶來新的景氣，另一方面青苗有再生之意，也代表栽培幼苗，作育英才。該設計的特色是把校舍大樓平面設計成青苗的形狀，校舍屋頂也盡量採用綠化的設計，提倡環保及可持續發展的概念，加強下一代的延續性。

The design theme of the first group was “seedling”, which conjured up the image of a renewed Sichuan after the reconstruction. Also, the seedling symbolised rebirth and the nurturing of the young to become talented and useful people. This design featured a seedling-shaped floor plan, with the roof deploying “green” designs to advocate environmental conservation and sustainable development for generations to come.

■ 助建小組討論三個設計方案
Project team discussing the three design proposals

Group I's "Seedling" Design

第一組「青苗」設計



园林綠化圖
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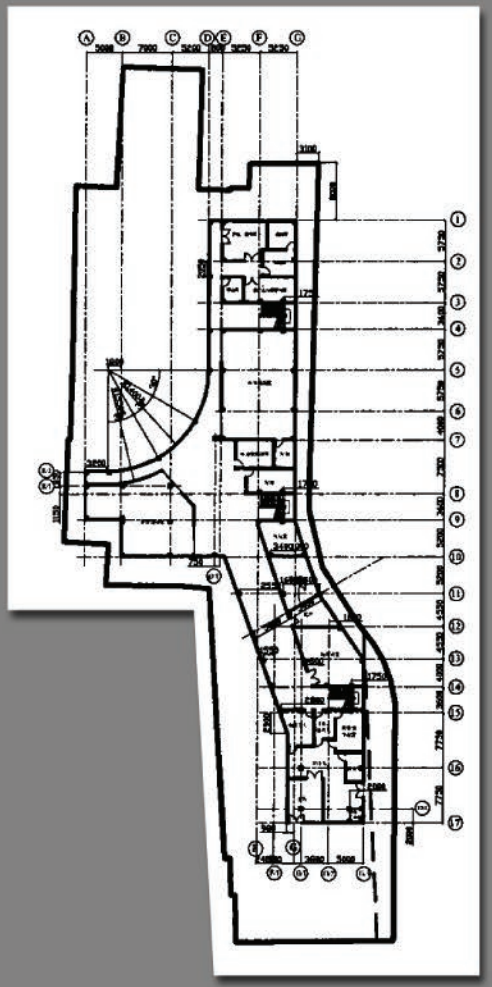

底層平面圖
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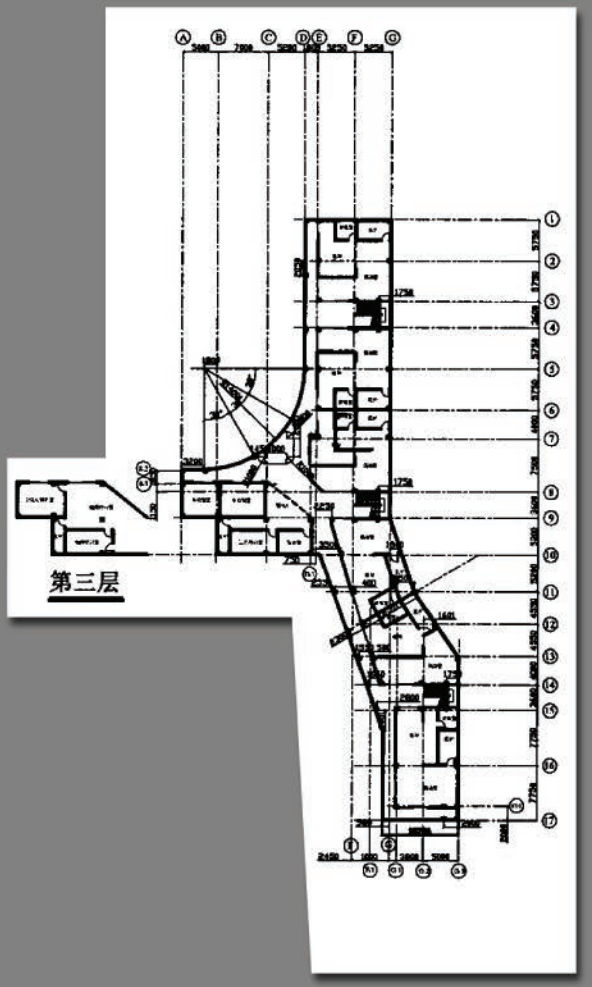

三層平面圖
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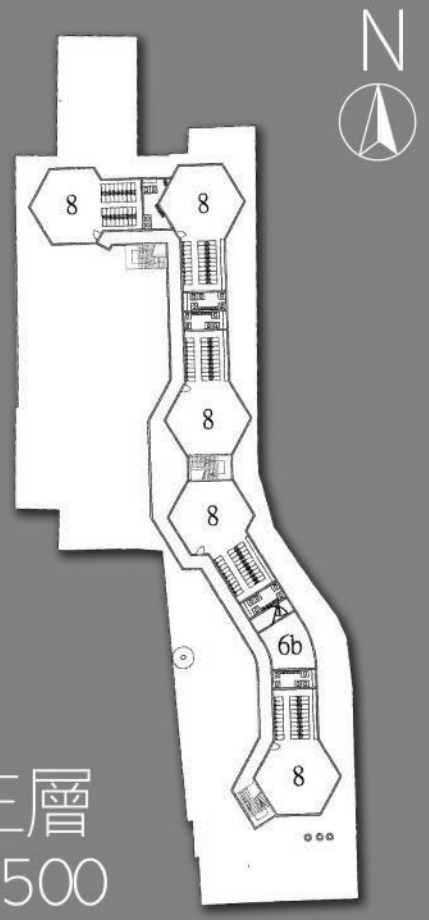
■ 第一組「青苗」設計
Group I' s "Seedling" design



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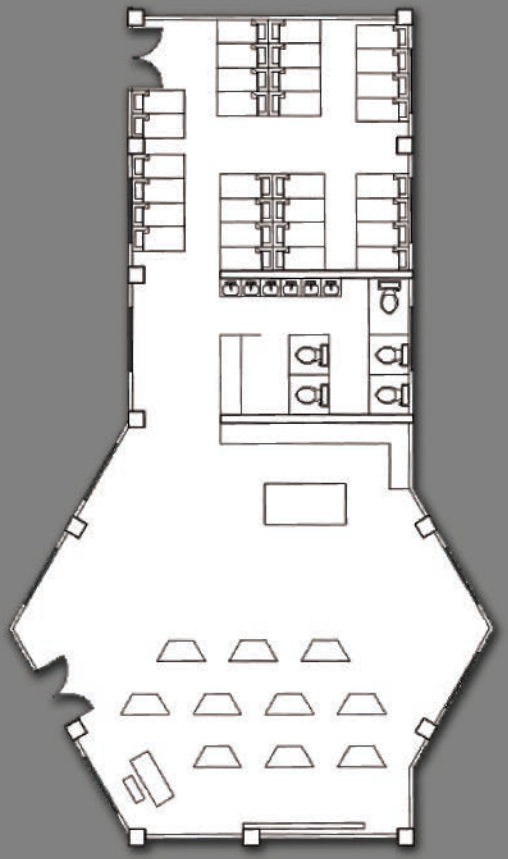
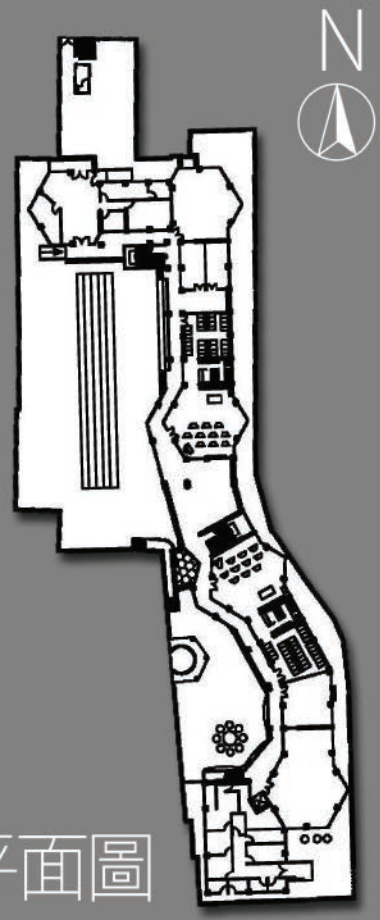




底層平面圖

Group II's 第二組 "Castle" Design 「城堡」設計

第二組取題「城堡」，從小孩子的角度出發，設計出外觀能吸引幼兒的幼兒園。校舍大樓的設計特色是由數個六角柱狀的建築組成，外型鮮明，仿似城堡的外型，還能提供更多的採光面，讓校舍內的自然光更充足。

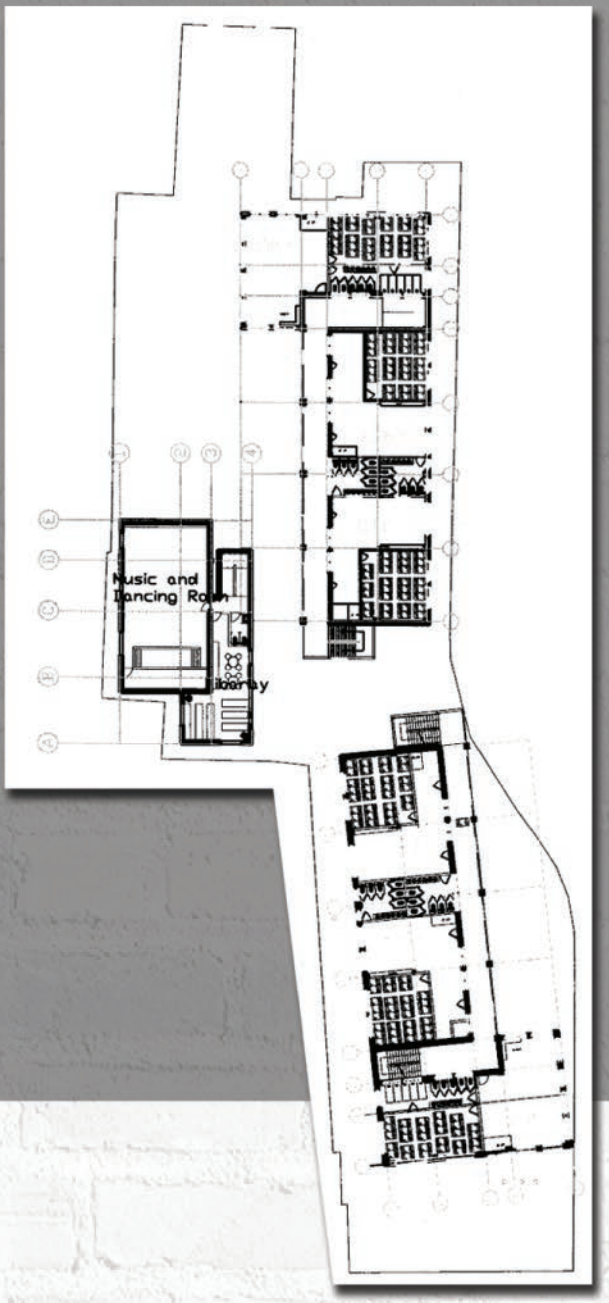
Group II had "castle" as its theme. Using a child's perspective, the design was meant to thrill the children with its fabulous appearance. Six hexagon-shaped cylindrical structures made up the main building. Its striking appearance resembled that of a castle; its many facets could also let in more natural light.

Group III's 第三組"Childhood Days"「童年時光」設計

最後一組的設計主題是「童年時光」，目標是設計出一個充滿創意及歡樂的幼兒園，能讓小孩子在學習期間能有一個充滿回憶的童年。設計特別之處在於把校舍分為三棟獨立建築，盡量騰出更多地面空間為遊樂場之用，設計也善用較多的立面提供有趣及生動的圖案，讓幼兒能增添上學的趣味。

The last group's design theme was "Childhood Days". Its aim was to design a kindergarten full of creativity and joy, a learning experience that would leave behind sweet memories of childhood. It featured three independent structures, which made for more space for the playground. This design also made good use of elevation design to provide lively and interesting motifs to liven up the ambiance of the learning environment.

二層平面圖



由於助建小組是第一次設計幼兒園，在確立主題後，他們仍需花上不少功夫在瞭解幼兒園的設計規範、各設施需要的空間及實際運作流程、日照角度及座向等，在時間緊迫的情況下，要在有限的土地上設計出既亮麗又實用的校舍，對助建小組而言是一個不簡單的挑戰。

就以幼兒園房間的種類及面積為例，這些資料在國家標準都有詳細規定，如遊樂場、教室、廚房、廁所、音體室等，要把規範要求的所有空間妥善分配在有限的校舍面積內，需要很大的學問，當中也要留意幼兒的日常生活流程，以作出切合師生生活的配置。如幼兒園的廚房是有特定的工作流程，在設計時需仔細考慮每個工序，如處理食物的時間、衛生等的問題，廚房內的生熟食物加工區要分開，處理完生食物後，再到下一個工作間處理熟食物，廚房也要有一部獨立升降機，以便食物可以直接送到不同樓層。而且，為了更配合幼兒的使用，助建小組在設計上亦需從小孩子的視覺去看世界，例如樓梯級的高度要調低，以配合小孩子的腳步；廁所的內牆亦要較矮，方便老師照顧幼兒；為了幼兒的安全，設計也要避免尖角等等。

Since it was the first time the project team had designed a kindergarten, after the theme had been established, every member worked hard to learn about the design requirements, such as space requirements of facilites operational procedures, natural lighting angles and orientations. The task was nothing short of challenging as they had to design a bright and beautiful yet functional campus on limited land within tight time constraints.

Take for instance the room types and the respective areas of a kindergarten, namely playground, classroom, kitchen, toilet and auditorium, as prescribed in building codes laid down by the government. It takes expert knowledge to allocate appropriately the required space within the limited area of the premises. One also had to pay attention to the children's daily routines in order to make the facilities user-friendly. For instance, the kindergarten's kitchen had in place a fixed operation procedure, so one had to consider food preparation steps such as the time for food preparation, the maintenance of proper hygiene, and the division of the raw and cooked food sections. A dedicated lift was also required to transport food directly to the various floors. Also, to facilitate the children's use of the facilities, the team had to see the world from the children's perspective. For instance, the rise height of the steps on the stairs had to be reduced to suit the children's size; internal partitions in the toilets had to be lower so teachers could take care of the children more easily; sharp corners had also to be eliminated for the children's safety.

3.2 滙報與難題

在三組同學分別完成概念設計後，每組的代表在2008年11月到崇州市向幼兒園王園長和老師滙報初步的設計方案，教育局王偉局長和王學斌副局長以及重建辦的兩位工程師也出席了滙報會。此次滙報主要是了解幼兒園老師、園長及教育局對各個初步設計方案的意見，包括對設計概念的喜好，以確定未來的設計方向及瞭解學校使用者的需要，以用家的角度去改善設計細節。另外，也希望讓四川工程師對方案提供專業意見，指出方案中的不足之處，以符合當地設計規範。過程中，老師們及工程師都對方案提供了不少實用的意見，供助建小組參考及修改。

3.2 Reports and issues

After completing conceptual designs, representatives of three groups travelled to Chongzhou in November 2008. They report their initial designs to the Principal and teaching staff of the kindergarten. Mr. Wang Wei, Director of the Education Bureau, Mr. Wang Xuebin, Deputy Director, and two engineers from the Reconstruction Office also attended the reporting session. The purpose of this meeting was to consult with the kindergarten's Principal, its teaching staff and the Education Bureau for their opinions and preference for the respective designs. Their feedback would be used to determine future design directions and improvements to details from the users' perspectives. Professional advice was also sought from the engineers from Sichuan. They were invited to identify shortcomings of the plans to ensure they conformed to local design standards. In the process, both the teachers and engineers offered ample practical advice for the team's reference and for further amendment.

■ 老師們與助建小組交流意見
Exchange between teachers and project team

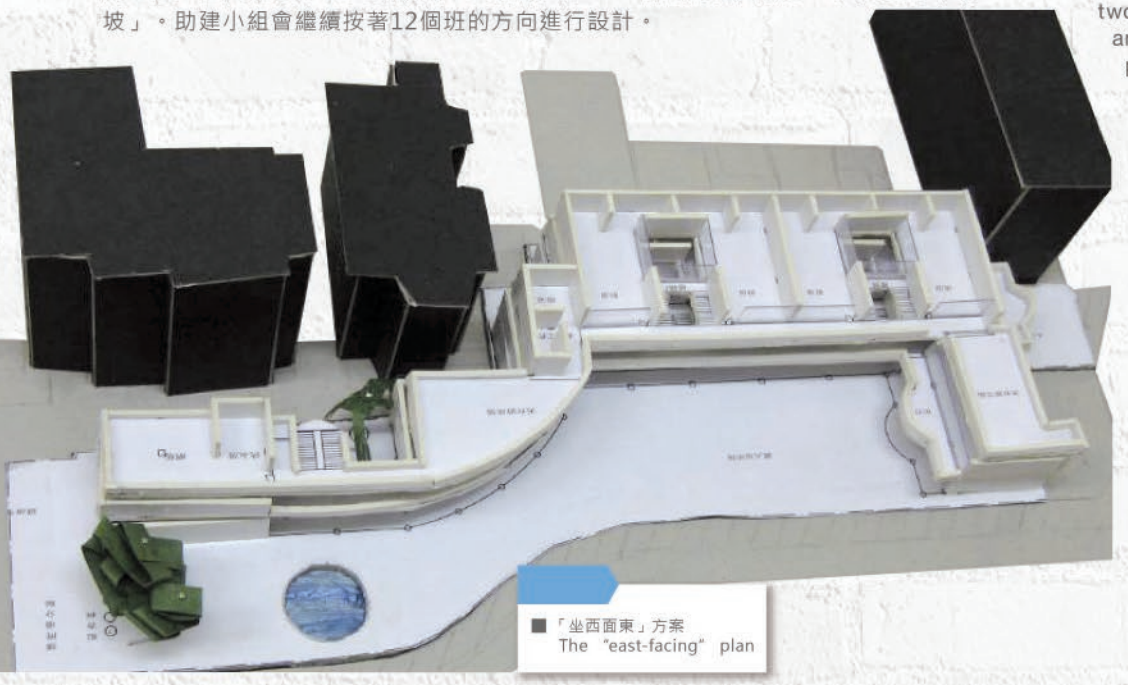
■ 助建小組和當地政府官員及工程師談論重建計劃情況
Project team discussing reconstruction plan with local government officials and engineers

■ 助建小組向幼兒園老師滙報初步的設計方案
Project team reporting to teachers of Kindergarten on initial design plans

滙報會後，梁教授、楊博士、郭博士、雷教授和兩位局長、重建辦兩位工程師及王園長在重建辦的辦公室會談，討論下一步的工作安排，雙方都坦誠地交換了意見和商討重建工作上預見的困難。

第一個難題是時間，王局長表示幼兒園學生暫於中學操場上的臨時板房中上課，政府考慮到幼兒園學童年紀太小，長期在臨時板房生活和活動並不安全，上級領導要求2009年9月前要讓幼兒遷出板房。然而，郭博士指出整個重建計畫需要最少24個月才能完成，時間上無法達到當地政府的要求在12個月內完成。王局長希望助建小組一方面加快設計，儘早開工，另一方面由教育局負責找房子讓幼兒園臨時搬遷。

第二個難題是重建金額，王園長提到最近崇州市有四所幼兒園獲援助重建，參考過每所幼兒園的重建費，王園長擔心正東街幼兒園的經費或不足夠重建成12個班。梁教授理解王園長希望「關懷行動」能提高重建金額，可是「關懷行動」能投入重建幼兒園的資金有限，根據重建辦提供的當地重建參考預算，重建費用會較預期高，資金不足以重建成12班規模的幼兒園。雖然教育局王局長認為若資金不足，就減少重建的規模，改建9個班。梁教授面對難題不忘幽默打趣道：「美好理想12個班，實事求是9個班。明天中了六合彩，再加多3個班。」，接著從公事包裡拿出一份檔案，那是有關2008及2009年香港立法會撥款共90億元成立「支援四川地震災區重建工作信託基金」，讓非政府機構向香港特別行政區政府申請資金參與震後援建工作。梁教授希望能與崇州市政府合作申請信託基金，以確保有足夠資金完成幼兒園的重建。王局長表示會全力配合，並鼓勵大家：「辦法總比困難多，只要思想不滑坡」。助建小組會繼續按著12個班的方向進行設計。



■「坐西面東」方案
The "east-facing" plan

第三個難題是原址地盤的出入口空間有限，因此需要拆除出入口旁的老房子才能配合工程。如按當地要求是要保留半座老房子，將嚴重阻礙施工，重建辦回應會由他們找房管局解決拆遷的問題。

最後，楊博士還指出如「明德工程」未能找到一家當地的設計單位簽審施工圖，大學所預備的設計圖便不能在當地施工。王局長表示會負責找崇州市建築研究勘測設計院談合作簽審之事。

在短短的交談中，各個難題都有了解決的方向。

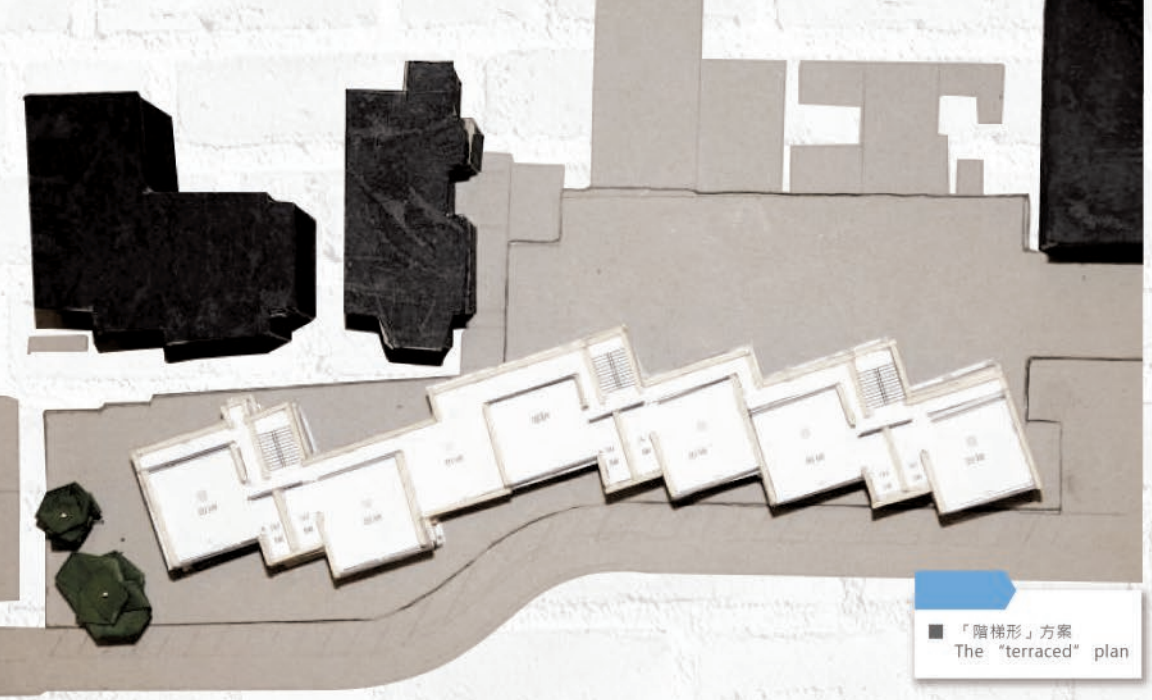
回港後，助建小組在建築師們的協助下就著幼兒園老師們的意見在2個月內修改了設計方案，集結了各初步設計方案之長，建築師再幫忙整合了兩個方案，一為「座西面東」方案，把教學樓設於西面，以盡量騰空東面的地面空間供幼兒活動，另一為「階梯形」方案，主要遷就日照角度，以階梯形的校舍設計讓每個課室都能有適當的陽光照耀。助建小組在2009年1月再次出訪崇州，進行第二次滙報。這次滙報除了有幼兒園的全體老師出席，也邀得崇州市建築研究勘測設計院王玫副院長和劉華建築師提供意見。助建小組滙報了方案後，幼兒園老師們進行了熱烈的討論，也選定了「座西面東」方案為之後詳細設計基礎。

及後，「明德工程」代表與王副院長傾談，希望雙方能就簽審施工圖的事宜合作。王副院長表示欣賞香港大學能參與重建的工作，也欣然回應會積極考慮雙方合作的建議。王副院長的正面回覆，讓簽審施工圖的難題有了解決的眉目。

After the reporting session, a further meeting was held in the office of the Reconstruction Office attended by Prof. Leung, Dr. Yeung, Dr. Guo, Prof. Lui, the Director and Deputy Director of the Education Bureau, two engineers from the Reconstruction Office, and Principal of the kindergarten Ms. Wang, to discuss arrangement for the ensuing work. Both sides had a frank exchange of ideas and discussed problems pertaining to the reconstruction work.

The first problem was time constraints. Mr. Wang from the Education Bureau pointed out that the children were studying in the temporary prefab sheds on the playground of a secondary school. The government was concerned that it was not safe for them to stay in those sheds for an extended period of time. His superiors had issued a directive that the children should be relocated from the sheds by September 2009. However, Dr. Guo pointed out that the entire reconstruction project would take at least 24 months to complete; it was impossible to accomplish it within twelve months as demanded by the local government. Mr. Wang hoped that the project team could expedite the design and commence the construction soonest possible, while the Education Bureau would try their best to find accommodation for the children's relocation.

The second problem was funding for the reconstruction. Kindergarten Principal Wang referred to relief funding recently allocated to four kindergartens in Chongzhou. After studying the costs for the reconstruction of each kindergarten, she was concerned that the funding for Zhengdong Jie Kindergarten would not be sufficient for the construction based on twelve classes. Professor Leung understood that Ms. Wang was hoping for Operation Concern to increase the funding, but the latter's funding for the reconstruction of the kindergarten was limited. According to the reconstruction costs estimate provided by the Reconstruction Office, they would be higher than expected, and the funding would not be sufficient for a 12-class kindergarten. Just when Mr. Wang of the Education Bureau was resigned to cutting the number of classes to nine failing sufficient funding, Prof. Leung had something up his sleeve. He quipped that "nine is realistic, twelve would be ideal, three more if we win the Mark Six tomorrow." He then pulled out from his briefcase a document pertaining to Hong Kong Legislative Council's establishment for the year



■ 「階梯形」方案
The "terraced" plan

■ 助建小組再次出訪崇州進行第二次滙報
Project team's visit to Chongzhou for the second reporting

2008-2009 of a 9-billion trust fund – Trust Fund in support of Reconstruction in the Sichuan Earthquake Stricken Areas – which would allow non-governmental organisations to apply for funding from the Hong Kong Special Administrative Region for disaster relief and reconstruction in the stricken areas. He was hoping to cooperate with the Chongzhou Municipal Government to apply for the trust fund which would ensure sufficient funding for the reconstruction of the kindergarten. Mr. Wang said he would be committed to the effort and encouraged everybody that "solutions always outnumber problems, as long as we keep our minds working". The project team would proceed with designs along the lines of twelve classes.

The third problem was the lack of space for access to the original site. For the reconstruction work to proceed, the old house next to the access point to the site had to be demolished. If, according to local requirements, half of the house was to be preserved, construction work would be severely hampered. The Reconstruction Office responded that they would contact the Housing Management Bureau to resolve the problem.

Lastly, Dr. Yeung pointed out that if Project Mingde could not engage a local design office to approve the construction plan, the designs prepared by the university would not be allowed to be used for the construction. Mr. Wang said he would convene with the Chongzhou Institute of Building Survey and Design to discuss collaboration on the matter of approval.

It was a brief exchange, yet each and every problem found a way forward for a solution.

After they returned to Hong Kong, with help from the architects, the project team revised their designs within two months while incorporating the kindergarten teachers' ideas and the strengths of the previous designs. With further help from the architects, two new designs emerged. One was the "east-facing" design, which located the teaching block to the west of the site to make room for other activities to the east. The other was the "terraced" design. The building was configured to face the sun, with the terraced structure giving every classroom the right amount of natural light. The team visited Chongzhou again in January 2009 for their second reporting session. Apart from the entire staff of the kindergarten, Ms. Wang Mei, Deputy Director of the Chongzhou Institute of Building Survey and Design, and Architect Liu Hua were also invited to attend. After the team reported their design plans, the kindergarten teachers engaged in a lively discussion and picked the "east-facing" design plan as the basis of further design.

Later, representatives from Project Mingde convened with Deputy Director Wang to express their wish to collaborate with the latter on the approval of the construction plan. Deputy Director Wang expressed his appreciation for HKU's participation in the reconstruction, and promised to consider seriously the collaboration proposal. His positive response took the group one step further to a solution for the approval problem.

3.3 立面設計

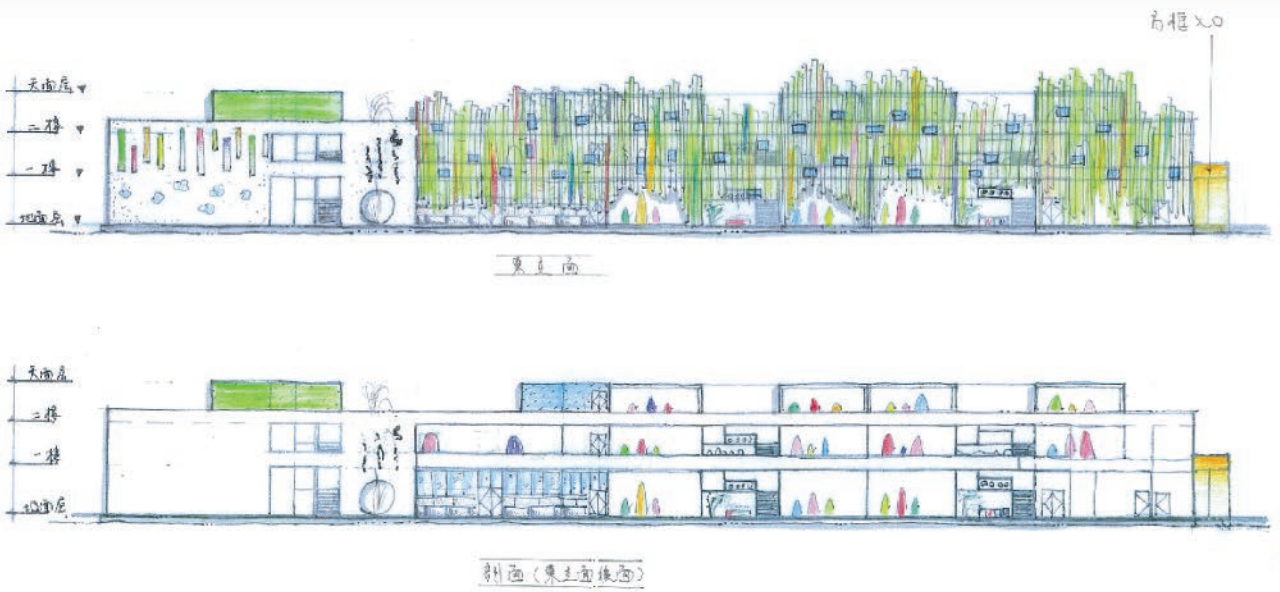
在定下了初步設計方案後，助建小組為了提升幼兒園立面設計的品質，邀請了姜藝思建築師聯同其他建築師義工帶領助建小組為幼兒園進行專業的立面設計，為幼兒園增添設計色彩。

姜建築師為幼兒園校舍的外觀建議了兩種不同風格的立面設計，一是以竹的形象採用彩色通透的輕質塑膠板作外牆的「彩色竹林」設計；另一種是在外牆「開孔欄河」的設計。徵詢了雷教授的意見，認為應先為立面設計進行模型照明測試，研究兩個不同立面設計的採光效果及對走廊及課室的影響，才決定採立那個方向的立面設計。為此建築師們及助建小組立即動手以珍珠板製作1:30的走廊及課室模型，務求盡快進行模型照明測試。模型照明測試在中文大學進行，結果顯示兩種立面設計均能達到照明要求。建築師們及助建小組就著令人鼓舞的測試結果，其後在一星期內完成了一個1:200的全校舍模型，方便理解立面設計的實際外觀及效果。對於建築系的學生而言，構建模型可能是很平常的事，但對於一群習慣計算的土木工程學生卻是一個很大的挑戰，幸有建築師們面授助建小組建立模型的機宜，讓助建小組開闊了眼界和上了寶貴的一課。之後，助建小組再次徵詢了雷教授及其他教授的意見，及邀請了香港專業教育學院的講師蒙兆禧建築師一起商討，經過詳細討論後，助建小組決定了採用改善後的「開孔欄河」立面設計。

3.3 Facade design

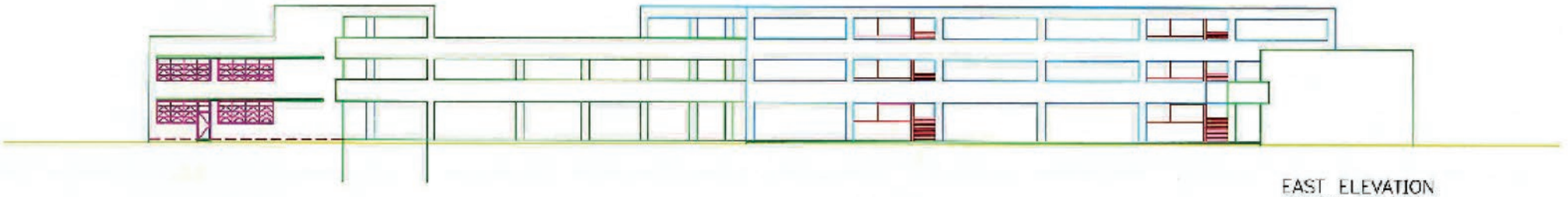
Having decided on an initial design plan, in order to enhance the quality of facade design for the kindergarten, the project team invited Architect Kiang Ngai-sze and other architect volunteers to work on a more professional facade design for the kindergarten.

Mr. Kiang proposed two different-styled facade designs for the kindergarten. One was a "colourful bamboo grove" design featuring coloured and translucent light plastic boards as the external wall. The other featured "perforated railings" for the external wall. Prof. Lui felt that a lighting model test should be conducted for the two facade designs to ascertain their natural lighting efficiency and their effects on the corridors and classrooms before the adoption of either. The architects and the project team thus began immediately to make a 1:30 foam board model for the corridors and classrooms to speed up the natural lighting tests. The tests were conducted in the Chinese University of Hong Kong. Both facade designs satisfied natural lighting requirements. With their morale boosted by the positive results of the tests, the architects and the project team completed within a week a 1:200 model of the kindergarten to appreciate better the physical outlook and impact of the façade design. Building a model may be routine for architecture students, but for a group of civil engineering students more used to computations, it proved a big challenge. Luckily they had the mentorship of architects on model-making which provided them with valuable knowledge and an eye-opening experience. Later, the team sought Prof. Lui's advice again, and invited Architect Mung Siu-hei, lecturer in Architectural Studies at the Institute of Vocational Education, to take part in the discussion. After a thorough discussion, the group decided to adopt an improved version of the "perforated railings" facade design.

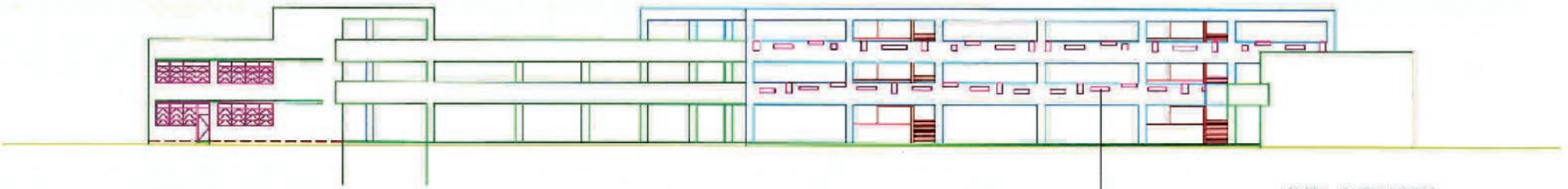


■「彩色竹林」設計
Colourful bamboo grove" design

WEST ELEVATION
(BASIC SCHEME)

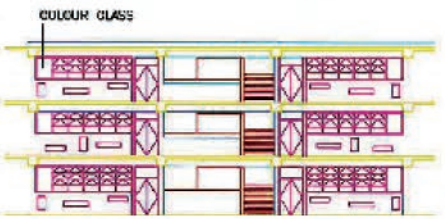


EAST ELEVATION
(BASIC SCHEME)



EAST ELEVATION
(COLOUR GLASS INSERT)

Scheme A



SECTIONAL ELEVATION

■「開孔欄河」設計
"Perforated railing" design

■ 在中文大學進行模型照明測試
Lighting tests being conducted at the Chinese University of Hong Kong

■ 助建小組製作1:200的校舍模型
1:200 model of the kindergarten made by the project team

■ 助建小組製作1:30珍珠板走廊及課室模型
Project team making 1:30 foam board model of corridors and classrooms

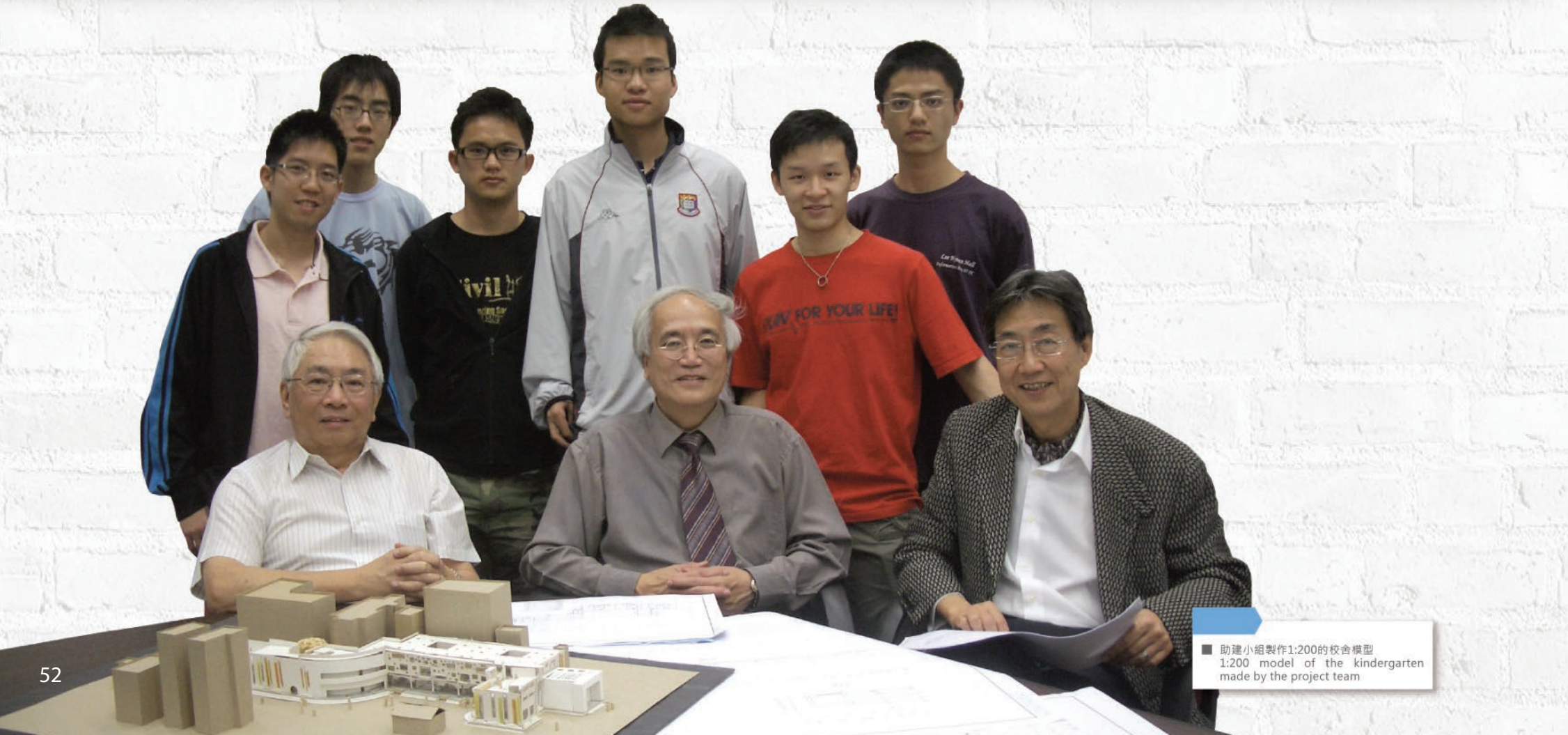
3.4 預審方案

經過一個月的努力，助建小組根據最新的立面設計修改了原來設計方案的建築圖則，並在2009年4月23日以全校舍模型及設計圖則向「關懷行動」主席梁教授報告最新完成的初步設計方案。

梁教授滿意助建小組的工作，肯定助建小組的努力和成果，並同意將初步方案送交崇州市教育局重建辦作預審。

3.4 Vetting the design

After a month' s tenacious efforts, the project team amended the architectural drawings of the original design plan based on the updated facade design. On 23 April 2009, armed with the complete model of the kindergarten and the accompanying architectural drawings, it reported to Prof. Leung, Chairman of Operation Concern, on the newly-completed initial design plan. Prof. Leung was pleased with the team' s work, and lauded its efforts and accomplishments. He also agreed to send the initial design proposal to the Chongzhou Education Bureau for vetting.



■ 助建小組製作1:200的校舍模型
1:200 model of the kindergarten made by the project team

第

Chapter 4

章

努力不懈 - 詳細設計及四川實習

Working with tenacity - detailed design
and Schuan fieldwork

4.1 重新出發

然而，正當補充協議和初步設計方案圖則都準備就緒之際，「明德工程」收到崇州市教育局重建辦的電郵通知，指出幼兒園附近老房子遷拆困難，幼兒園的土地邊界須要作出調整，較原先答應的土地面積減少約400平方米，入口寬度也因未能清拆老房子而要減少5米，12個班的初步設計方案再也不適用，只能按較少的班數重新設計。

4.1 Starting anew

However, just when supplementary agreements and the initial design and drawings were ready, Project Mingde received an email from the Reconstruction Office of Chongzhou Education Bureau that the demolition of the old house next to the kindergarten had run into problems, and the boundary for the kindergarten had to be redrawn. The site area would now be reduced by 400 sq. m, and the entrance width by 5 m, due to the old house still standing. The initial design accommodating twelve classes would also be unusable, and the design would have to be redone based on a smaller number of classes.

■ 正東街項目附近的房子
Buildings in the vicinity of the Zhengdong Jie project

雖然整個初步方案需要重新設計，但助建小組從學習過程中所累積的知識及經驗卻沒有因此而失去，修改及重新設計是另一個學習的機會。在梁教授及香港大學土木工程系李啟光教授、楊博士和郭博士的支援下，「明德工程」繼續進行這個項目，也繼續向香港特別行政區政府申請資金，以利用充足的資源支持幼兒園的重建。

為了確定土地及規劃的要求以釐定定設計班數，2009年6月中，助建小組再次訪問崇州並與陳剛副市長開會商討重建事宜，陳副市長表示欣賞「關懷行動」及「明德工程」對重建崇州市的關心，並願意協助解決土地問題。在陳副市長的主持下，規劃局同意放寬部分規劃要求，包括建築物要求放鬆至可建四層；在能滿足消防通道的規劃要求下，放寬東面用地的部分限制。雖然學校的土地面積仍是減少了，只能按9個班規模重新設計，但因規劃局的積極配合，幼兒園的土地使用及設計變得較有彈性。

重新設計需要不少時間，早前的初步設計已用了大半年才能完成，為了跟上進度及提供一個更切合幼兒園需要和更專業的方案，郭博士邀請了香港專業教育學院的講師蒙兆禧建築師和香港大學建築系助理教授林君翰建築師參與。蒙建築師及林教授理解重建幼兒園項目的處境，並答應了協助重新設計初步方案。

Although the entire initial design plan had to be redone, the team was unfazed as their accumulated knowledge and experience were still intact; amending or redoing the design would mean another learning opportunity. With the support from Prof. Leung, and Prof. K.K. Lee, Dr. Y.S. Yeung and Dr. Guo of the HKU Civil Engineering Department, Project Mingde continued its work on the project, and pressed on with their application for funding from the Hong Kong SAR for the reconstruction.

To ascertain land and planning requirements in order to determine class number, the team visited Chongzhou again in mid-June 2009 to discuss with Deputy Mayor Chen Gang major issues of the reconstruction. Mr. Chen expressed his appreciation for Operation Concern and Project Mingde's dedication to the reconstruction of Chongzhou, and agreed to resolve the land issues. Under Mr. Chen's mediation, the Planning Bureau relaxed some of the planning requirements, including floor number which was now increased to four, and relaxing the restrictions on land use in the eastern part as long as fire safety requirements on fire exits were satisfied. Although the kindergarten's land area was still less than before, and had to be redesigned based on nine classes, with the support of the Planning Bureau, the kindergarten's land use and design had become more flexible.

Starting anew took time; the initial design had already taken the larger part of the year to complete. In order to produce a more professional and needs-based design, Dr. Guo engaged the help of Architect Vinco Mung, lecturer at the Institute of Vocational Education, and John Lin, Assistant Professor in Architecture at HKU for the project. Architect Mung and Professor Lin appreciated the situation facing the reconstruction project, and agreed to help to redesign the initial plan.

4.2 新設計方案

4.2 New design

參考過之前多輪設計方案的經驗和優缺點，蒙建築師及林教授在很短的時間內預備了四個方案，為了更好的展示各個方案的特點，他們特意為每個方案做了一個模型，解釋每個方案的特色：

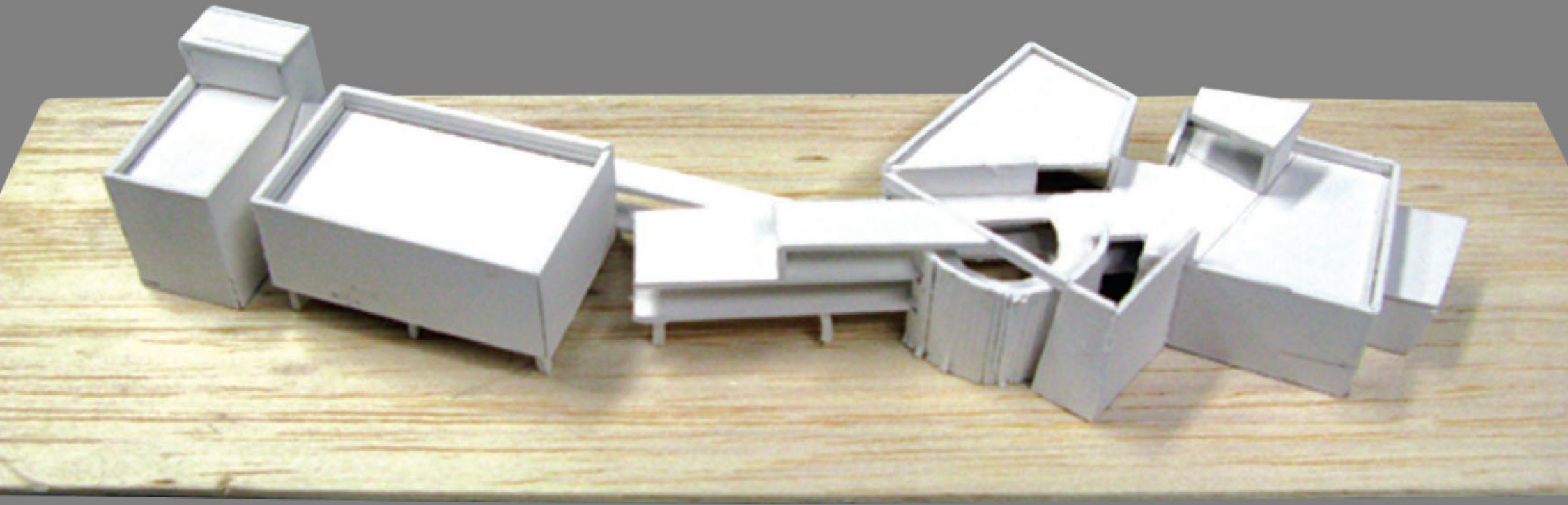
Having made reference to the various rounds of design plans and their pros and cons, Architect Mung and Professor Lin came up with four plans in a very short time. In order to showcase the distinct features of the plans, they made a model of each to show their unique features:

方案一：圓柱形音體室

以一個特大的圓柱形建築為設計中心，圓柱體內是一個禮堂，可讓幼兒能夠舉行集會和其他集體活動，幼兒也可以在這裏唱歌跳舞。禮堂的二樓有一條橋，連接幼兒院的其他部分，也可以讓小孩子觀察禮堂內的情境。

Plan I: Cylindrical auditorium

The centerpiece of this design is a colossal cylindrical structure which houses an auditorium where the children can hold assemblies and other group activities. It also serves as a song and dance venue. On the second floor of the auditorium is a bridge which leads to other parts of the kindergarten, and from where the children can observe the goings-on in the auditorium.



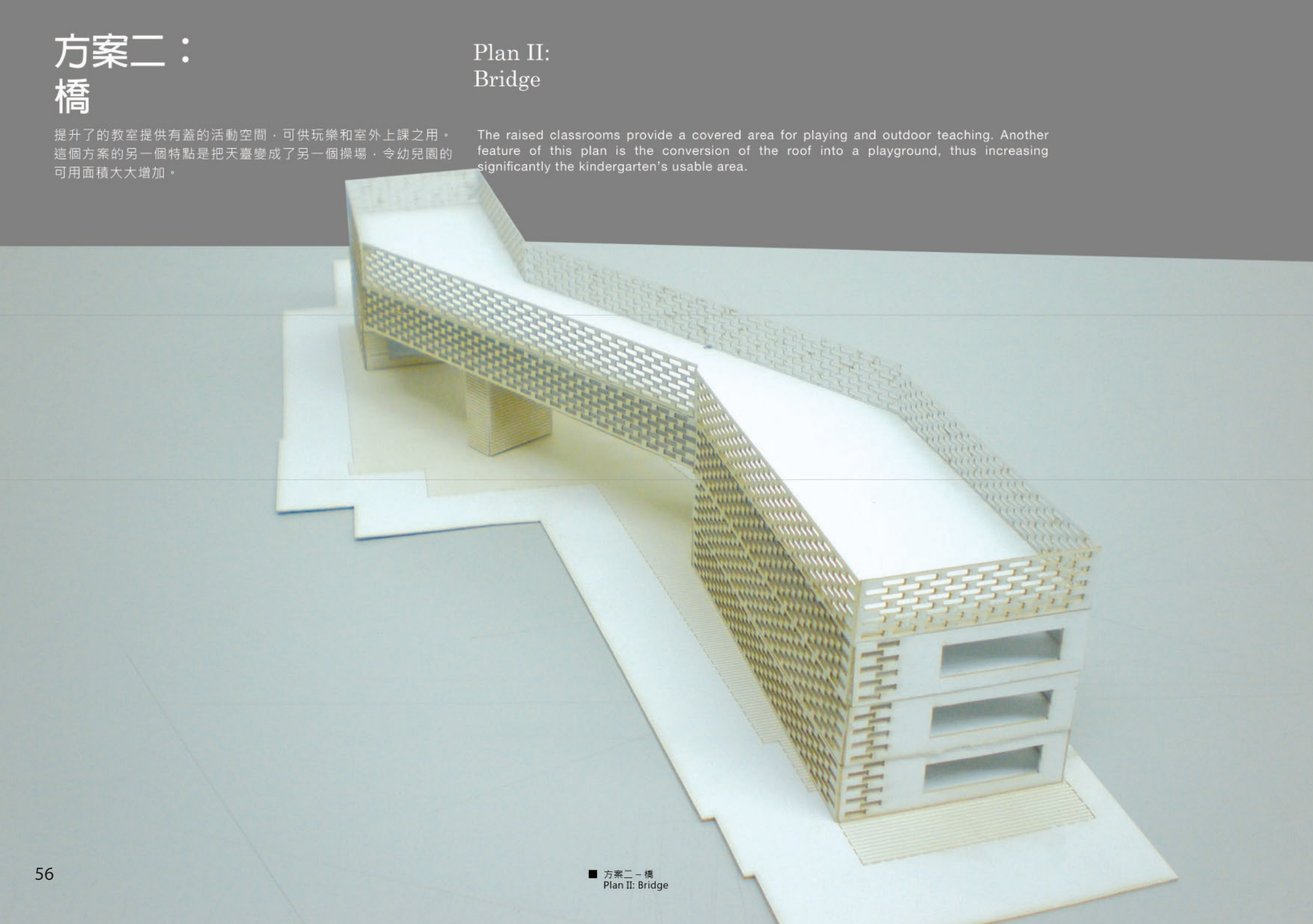
■ 圓柱形禮堂
Cylindrical auditorium

方案二：橋

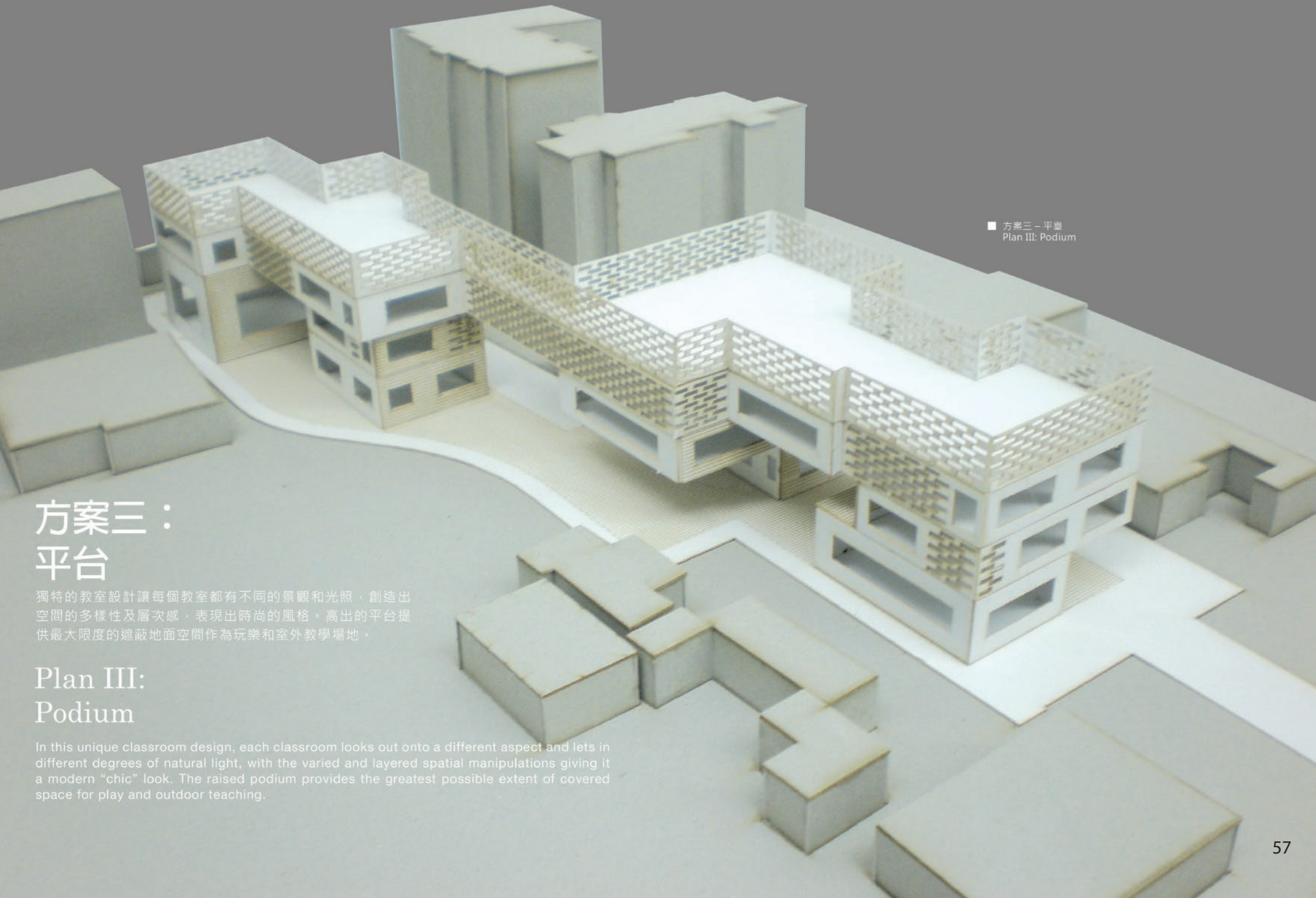
提升了的教室提供有蓋的活動空間，可供玩樂和室外上課之用。這個方案的另一個特點是把天臺變成了另一個操場，令幼兒園的可用面積大大增加。

Plan II: Bridge

The raised classrooms provide a covered area for playing and outdoor teaching. Another feature of this plan is the conversion of the roof into a playground, thus increasing significantly the kindergarten's usable area.



■ 方案二－橋
Plan II: Bridge



■ 方案三 – 平臺
Plan III: Podium

方案三：
平台

獨特的教室設計讓每個教室都有不同的景觀和光照，創造出空間的多樣性及層次感，表現出時尚的風格。高出的平台提供最大限度的遮蔽地面空間作為玩樂和室外教學場地。

Plan III:
Podium

In this unique classroom design, each classroom looks out onto a different aspect and lets in different degrees of natural light, with the varied and layered spatial manipulations giving it a modern “chic” look. The raised podium provides the greatest possible extent of covered space for play and outdoor teaching.

助建小組希望幼兒園的老師能參與方案的選擇，所以列出各個方案的設計特點，向幼兒園的老師們作出介紹，並詳細解釋每個方案的設計概念及特色。

As the project team would like the teachers of the kindergarten to take part in the choice of plans, it set out the design features of each plan for the teachers and explained in great detail their respective design rationales and features.

經過助建小組與幼兒園老師的多輪討論後，由於圓柱形禮堂在崇州市是前所未見的，有別於其他崇州市內的幼兒園，老師們認為小孩子在這裏能更好地表現自己的才華。結果幼兒園老師透過投票選擇了由蒙建築師提交的圓柱形音體室方案。

助建小組也向捐款人周植先生的親屬羅先生、劉先生與其太太滙報了正東街幼兒園的建築設計方案，並得到捐款人的肯定。同時助建小組和梁教授及十多名幼兒園的老師一起出席了與崇州市陳副市長的聯席會議，與規劃局討論幼兒園的方案，並在當天獲得當局的審查同意。

After many rounds of discussions with the teachers, as a cylindrical auditorium had never been seen in Chongzhou before and would stand out from other kindergartens in the city, the teachers believed it would provide the children with a better venue to showcase their talents. In the end, the teachers voted in favour of Architect Mung's design with the cylindrical auditorium.
The project team also reported the design proposal for Zhengdong Jie Kindergarten to the donors, Mr. Chow Chik's relatives Mr. Law, and Mr. and Mrs. Lau, who endorsed the proposal. At the same time, the project team, Prof. Leung and a dozen teachers from the kindergarten attended a meeting held by Chongzhou Deputy Mayor Chen Gang to discuss with the Planning Bureau the kindergarten design proposal, which was approved by the authorities on the same day.

■ 向幼兒園老師們作方案介紹
Explaining the design plans to kindergarten teachers

4.3 方案的特色

由於幼兒園的可建面積不大，建築師們在設計及空間的形造上花盡心思，務求善用有限的空間，為小孩子提供最好的學習環境。考慮到小孩子需要大量嬉戲空間，建築師特意將建築物升高，並預留地面空間，以作有蓋操場之用。即使身處崇州市這個多雨水的城市，孩子們在雨天時仍能享受室外玩樂的樂趣。因為內地學校大多正正方方，讓人覺得沈悶，所以建築師在幼兒園的設計中採用簡單的幾何形狀，以圓形、長方形和正方形組成主體，與周遭的通道構建在一起，造成不同類型的混合空間，為兒童提供空間感之餘，仍營造了視覺上的衝激。

這個方案最特別的可說是圓柱形禮堂，圓形設計除了令舉行音樂活動時感覺更空曠外，亦考慮到室內的聲效，令聲音更宏亮、清晰和動聽。由於其位置居於校舍中央，旁邊就是操場，孩子們的歌聲便會在禮堂內縈繞，在操場蕩漾，為校園增添活力和歡樂。

助建小組參考川西民居天窗的風格，圓柱形禮堂的頂部是由玻璃天窗組成，陽光透過透明的玻璃滲進校舍，是天然採光的設計。隨著日照時間的轉移，光源的分散、強度亦不斷變化，為倘大的空間帶來溫暖和光明。

4.3 Features of the design

As the kindergarten's usable area for construction was limited, the architects tried their utmost to optimize the space through ingenious design and spatial manipulation. Since the children would need a lot of space for play, the architects raised the structure to a higher level on purpose to reserve the space underneath for use as a covered playground. Hence, even though Chongzhou is rain-sodden a lot of the time, the children would still be able to enjoy outdoor play on rainy days. As schools on the Mainland are mostly square-shaped which is not very exciting, the architects of this design uses simple geometric shapes to form a main structure of circles, rectangles and squares and integrates them structurally with the passageways around it. The variegated-shaped space produces a strong visual impact while providing the children with a sense of space.

The pièce de résistance of this design has to be the cylindrical auditorium. Apart from giving a sense of spaciousness during musical activities, the circular design also addresses the issue of acoustic effect, so the sounds would be clearer, more powerful and more aesthetically pleasing. As it is located at the centre of the kindergarten with the playground next to it, the children's voices would fill the auditorium and spill over onto the playground. It would be a picture of liveliness and joy!

The roof of the auditorium is made up of a set of skylights, a design feature borrowed from the architectural style of western Sichuan. It allows natural light to shine through the glass into the cylindrical auditorium. With the shifting of the angle of the sun as the day progresses, the dispersion and intensity of the light source would also change, infusing the vast space with warmth and light.

隨著禮堂內蜿蜒的樓梯拾級而上，可達更高樓層，而禮堂亦連接起校園的東西面，這設計加強了園內各方的連絡性。

小孩子總渴望看到與成人視野一樣的風景，然而，身高的限制令他們常常被高高的圍牆阻擋，使他們看不到與成人一樣的景觀。因此，設計師特意在走廊圍牆和牆壁上，在與孩子身高相若的地方預留一排排小小的正方形孔洞，讓孩子得以童眼看世界。

A winding flight of stairs in the auditorium leads to the higher floors; the auditorium also links up the eastern and western sections of the premises, giving the entire structure a sense of cohesion.

Although children like to look at the world as grown-ups do, parapets often block their views. Thus, to let the children see the world, rows of square holes about the height of a small child are put in place on walls and corridors.

■ 助建小組考察川西民居的建築風格
Project team's study of architectural style of western Sichuan

4.4 建築之路

選出了方案後，助建小組也收到了王玫副院長的好消息，崇州市建築研究勘測設計院願意與「明德工程」合作完成幼兒園的設計圖則，「明德工程」負責建築設計方案，而設計院則負責完成施工圖及協助簽審。崇州市建築研究勘測設計院的參與讓整個設計變得踏實，「明德工程」的建築設計方案能正式成為幼兒園的重建藍圖。另外，助建小組的同學在暑假亦會到設計院內實習，以協助完成詳細設計及製作施工圖

4.4 The long road of construction

After they had decided on the design, the team received good news from Deputy Director Wang Mei. The Institute agreed to partner with Project Mingde to complete the design drawings for the kindergarten: Project Mingde would be responsible for the architectural design proposal, while the Design Institute would complete the construction plan and assist with its approval. The Design Institute's participation was crucial for the project, as Project Mingde's design proposal would officially become the reconstruction blueprint for the kindergarten. Also, members of the project team would attend practical sessions in the Institute during the summer holidays to complete the details of the design and the production of a construction plan.

構畫建築圖則

2009年8月，10位助建小組成員到了崇州市建築研究勘測設計院進行了三個星期的實習，幫助完成幼兒園的建築方案。在郭博士和設計院的幫助下，助建小組利用畫圖軟件，完成在香港已有設計初稿的建築方案圖則。由於內地版與香港版的設計軟件有不同之處，助建小組須小心處理，以確保兩個不同版本的軟件可以共融。

Producing architectural drawings

In August 2009, ten members of the project team began a three-week practical training stint at the Chongzhou Institute of Building Survey and Design to assist in making the architectural plan for the kindergarten. With help from Dr. Guo and support from the Institute, the team used CAD software to complete the initial draft of the architectural drawings prepared in Hong Kong. As there were differences between the Mainland and Hong Kong design software, the team had to make doubly sure the two different versions of software were compatible.

■ 繪製設計初稿的建築方案圖紙
Producing architectural drawings for draft design

學習結構計算軟件

助建小組也開始學習使用內地常用的結構計算軟件，為了更好掌握及運用技巧，實習同學透過處理實例項目，在設計院的結構工程師指導下累積經驗。當地政府因地震要重新檢視所有學校的結構建築圖及抗震能力，以保障學生的安全，助建小助於是幫助設計院根據施工圖資料重新用電腦分析和檢查了崇州市三所學校校舍的抗震設計。這次的經驗，使同學們對結構計算軟件的應用有了更深的理解，對幼兒園新大樓的結構分析打下了基本功。

Learning to use structural computation software

The project team also started to learn how to use structural computation software commonly-used on the Mainland. In order to familiarise themselves with the software and to use it effectively, the students honed their skills through working on real projects under the guidance of structural engineers in the Institute. In the wake of the earthquake, the local government had to re-examine the structural drawings and quake resistance of all schools to ensure students' safety. The project team assisted the Institute in checking the quake resistance design of three schools in Chongzhou according to data on their building plans using computer analysis. This work experience greatly enhanced the students' understanding of the use of the structural computation software, which laid a solid foundation for structural analysis of the kindergarten.

■ 助建小組實習情況
Project team in training

認識抗震設計

在汶川大地震中，我們可以看到中國仍有大量的房屋沒有抗震的設計，而且對於地震後次生災害的應急防預也缺乏訓練。須知道有良好抗震設計的房屋，可以大大減少地震對生命財產所造成的破壞。故此助建小組在結構設計時必須把抗震的設計應用於幼兒園的大樓當中，減低地震的破壞力，而前往考察受地震災害的樓房就成為學習的一環。

Learning about quake-resistance design

It can be seen from the Wenchuan earthquake that a large percentage of housing in China had no quake resistance incorporated into their design, and there was also a lack of training for civil defence against post-quake secondary disasters. Housing with good quake resistance can reduce to a great extent the human toll and economic losses. Hence the project team felt it was imperative to incorporate quake resistance design into the structural design of the kindergarten to reduce potential damage from earthquakes. The study of buildings damaged during the quake became an important link in their experience.

■ 損毀的路橋
A damaged bridge

■ 考察地震中損毀的樓宇
Study of buildings damaged in the quake

助建小組曾前往汶川大地震的震央映秀鎮考察災情。即使當時已是震後兩年，但很多損壞的建築物並未被修復或重建，該處仍實施交通管制。抵達映秀後，同學們放眼望去，滿目瘡痍，心感大自然的威力，以及人類在自然災害面前的渺小。儘管如此，在自然災害發生之前，人類應盡力作出適當的防預，以減少災害發生時所造成的人命傷亡。在考察的時候，實習同學仔細觀察樓房倒塌的狀態，以及裂縫構成的方向。在大部份損毀的樓房中，懸臂樑的位置是損毀最嚴重的地方之一，因為這位置是整幢樓房中，強度最弱的部份，在地震中往往是這部份先倒下。學習支柱的鋼筋配置及剪力鋼筋的配置成為實習同學努力的方向。

The team also travelled to Yingxiu Town, the epicentre of the Wenchuan earthquake, to study its devastation. Even though it was already two years on since the quake hit, many damaged buildings had yet to be repaired or reconstructed. Traffic control was still in force. When the students arrived at Yingxiu, it was a scene of desolation and utter destruction. They were awed by the power of nature and the insignificance of man in the face of disaster. Nonetheless, man should try his best to take the necessary precaution before disaster strikes so as to minimize human casualties. The group made detailed observations of the state of the collapsed buildings and the orientation of the cracks. In most of the collapsed buildings, the cantilever beams were the most seriously damaged, as they were located at the weakest part of a building, and would be the first to collapse in a quake. The placing of column and shear steel bars thus became a main area of study for the student undergoing training.

■ 地震中損毀的校舍
School building damaged in the quake

考察完結後，助建小組回到崇州建設院繼續其幼兒園設計工作，本著國家標準中對地震的要求：「小震不壞；中震可修；大震不倒。」，對幼兒園的結構進行抗震設計。針對結構形狀跟地震時的受力關係，助建小組巧妙地在幼兒園音體室和課室的交接位置，佈置變形縫，以減少當地震出現時而形成的扭力，而且懸臂樑的部份更小心設計，控制其跨度，並謹慎配鐵。

After the inspection, the team returned to Chongzhou to continue its design work on the kindergarten. Along the lines of national standards for quake resistance – "no damage in minor quakes; repairable in moderate quakes; no collapse in severe quakes" – the team applied quake resistance design to the structure of the kindergarten. Paying special attention to the relationship between structural forms and the points of impact in the event of an earthquake, it ingeniously installed a flexible-shaped gap at the junction between the auditorium and the classrooms in order to reduce the torsional force produced in a quake. The cantilever beams were also carefully designed with appropriate placements of steel bars to control their span.

建立結構分析的興趣

助建小組從崇州實習回港後，成立了一個結構設計小組，每週定期在香港大學土木工程系的實驗室內製作幼兒園的電腦模型，進行為期半年分析和設計，以製作招標圖。他們還教導下一屆的學生使用該軟件，體現了「明德工程」的傳承精神。

Building interest in structural analysis

After the project team had returned to Hong Kong from Chongzhou, it set up a structural design unit for the production of a computer model of the kindergarten to be used for public tender. The unit was to meet weekly for six months in the HKU Civil Engineering laboratory to work on design and analysis. Its members also taught the students a year below them how to use the software – a fulfilment of the true spirit of Project Mingde, that of passing on experience and knowledge.

■ 參與結構分析的同學們
Students participating in structural analysis

雖然結構小組成員要面對繁重的功課及考試，快要畢業的同學更要兼顧工作招聘的面試和完成畢業報告，但大家都擁有共同的信念，希望能完成幼兒園的結構分析及設計。在製作過程當中，助建小組發現該軟件的一些漏洞，例如在架構幼兒園的圓柱形音體室的時候，同學們發現該軟件不能建立非直線的結構元件，就算以多條直線的結構元件模擬圓形，但得出來的結果亦與所推測的有所不同。由於該軟件在國內廣泛使用，學生就著該項發現，向不同的大學教授請教，並寫信給該軟件的開發公司闡述。最終該開發公司解決了這問題。而這幼兒園的結構模型最後亦在與崇州建設院努力合作之下，順利完成。

參與結構小組的同學，在這過程當中建立了對結構設計的興趣，學習成績更因為參與了這設計項目而有所進步。部份同學在畢業後，更因此投身結構設計工程師的行列。

Although the structural unit had to face a heavy workload in their studies and the year-end examination, and final year students had also to worry about job interviews and final year reports, all were committed to their goal, which was to complete the structural analysis and design for the kindergarten. During the work process, the project team identified a number of pitfalls in the software, e.g. when constructing the cylindrical auditorium, the students found that the software did not accommodate non-linear components. Even if they emulated a circle using multiple linear components, the results obtained would still deviate from what had been projected. As the software was commonly-used on the Mainland, the students sought the advice of various university professors, and wrote to the software developer to explain the problem. At last the developer solved the problem. The structural model of the kindergarten was at last accomplished with the unfailing cooperation of the Chongzhou Design Institute.

4.5 資金獲批

在差不多完成幼兒園的詳細設計時，「關懷行動」梁教授在2009年10月收到了香港特區政府發函通知，為重建幼兒園而申請的「支援四川地震災區重建工作信託基金」獲批。這筆款項對重建幼兒園的工程十分重要，因四川各處都在進行重建工作，物價及工價均比預期漲了不少，充足的資金能讓「明德工程」有空間改善幼兒園的配套設施，讓幼兒園的設備變得更完善。

4.5 Funding approved

Shortly before the completion of the detailed design for the kindergarten, Prof. Leung of Operation Concern received in October 2009 notification from the Government of the Hong Kong SAR that application for funding for the reconstruction of the kindergarten had been approved by the Trust Fund in Support of Reconstruction in the Sichuan Earthquake Stricken Area. The funding was crucial for the reconstruction project, as material and labour costs had soared due to the ubiquity of reconstruction work all over Sichuan. The funds would allow Project Mingde more leeway to build a well-equipped kindergarten with good facilities.

第5章 Chapter

承先啟後 — 公開招標

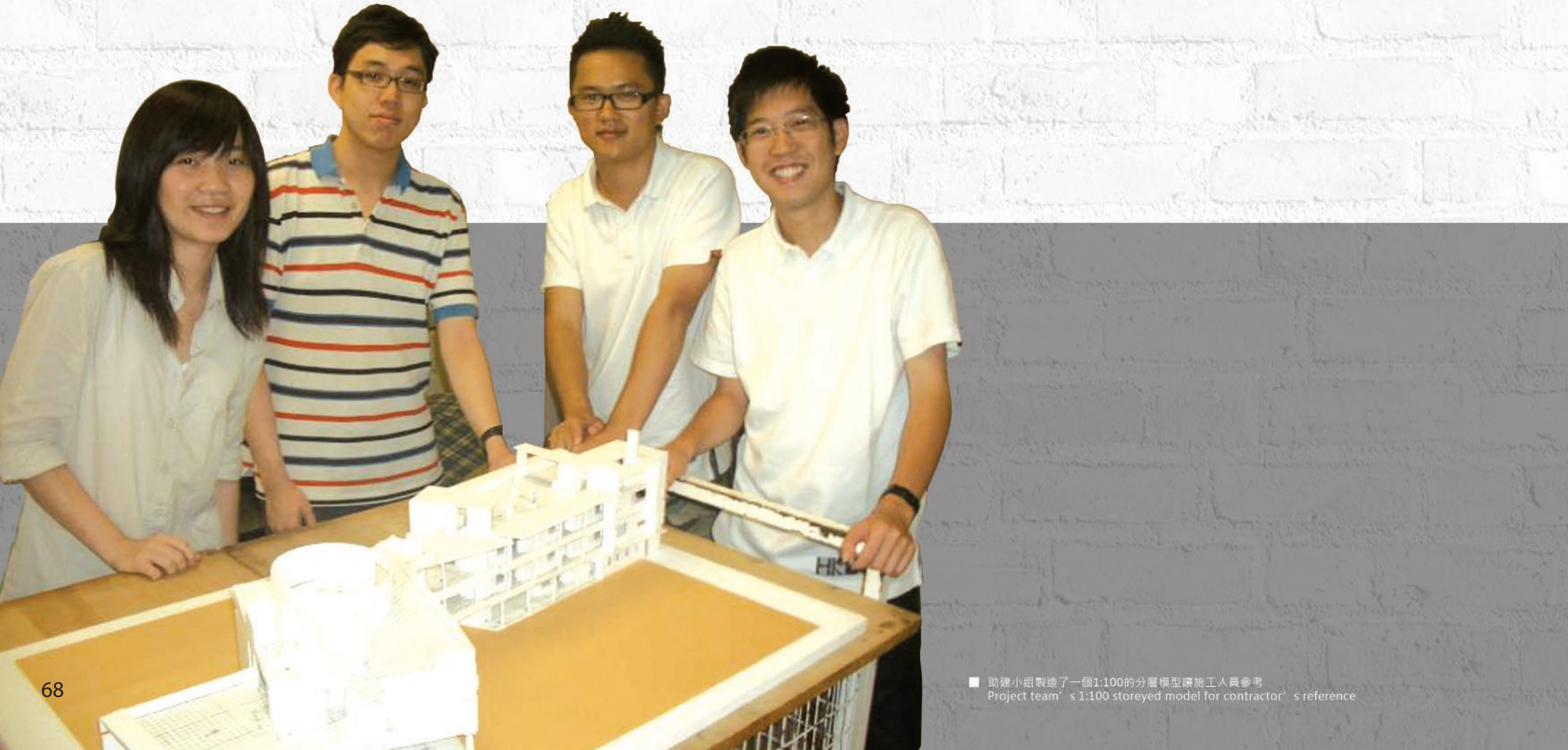
Passing on Experience and Knowledge -- Open Tender

5.1 新的挑戰

從設計到施工，要令幼兒園能完整地按著設計原意興建出來，助建小組需先行整理各項設計訊息，包括設計概念、建築結構、抗震要求、項目特色、物料質素、校舍設備及施工要求等，然後將所有資料紀錄於施工圖紙上，並在招標文件以文字詳細地列出施工單位清楚地了解整個幼兒園的設計要求，並按部就班地興建出來。為了更有效地讓施工人員閱讀施工圖，助建小組製造了一個1:100的分層模型，在施工階段送往工地讓施工人員參考。

5.1 New challenge

For the construction of the kindergarten to fully adhere to the design, the project team had to compile various kinds of design information, including design concepts, structural designs, quake resistance requirements, distinct features of the project, quality of building materials, kindergarten facilities and constructions requirements, and render them onto the construction drawings. Textual descriptions of related requirements and details also had to be written into the tender document, to ensure that the contractor would fully understand and follow the design requirements. To complement the construction drawings, the team constructed a 1:100 storeyed model, for the contractor's reference on site.



■ 助建小組製造了一個1:100的分層模型讓施工人員參考
Project team's 1:100 storeyed model for contractor's reference

幼兒園有不少具特色又對崇州而言較為新穎的設計，在轉化設計為崇州技術上可行的施工方案這問題上，助建小組為此面對不少困難和挑戰。例如在設計圓柱型禮堂的大門時，大門需在圓型門軌上滑動開關，這需要有清晰的設計指引及技術規定，對製造及施工技術有相當的要求。助建小組從不同管道尋找參考和解決方法，包括親身到香港馬鞍山公眾碼頭側的士多建築物，參考該玻璃門門軌及開關的接駁位，更向維修玻璃門的專家請教，以制訂設計指引。不但如此，助建小組更在崇州實習期間，特意考察在成都的建材市場，以確保有適合的材料及技術，能夠完成玻璃門的製造。

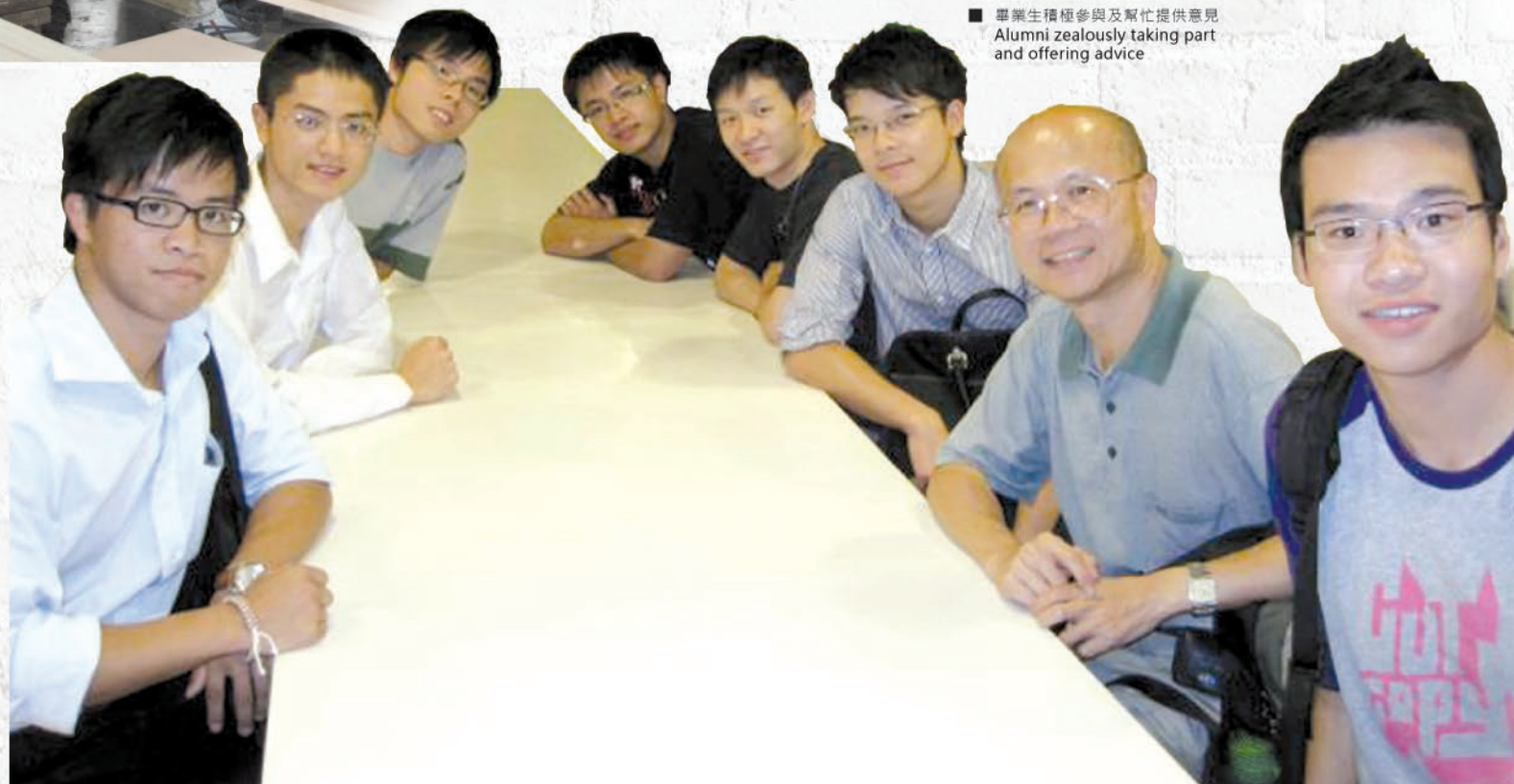
The kindergarten boasted many distinct features which would seem quite new to Chongzhou. Turning the design into a technically viable construction plan indeed posed some problems and challenges for the team. For instance, the design for the main entrance to the cylindrical auditorium required the door to slide along a circular track, which required clear design guidelines and technical specifications. This called for a high standard in manufacture and installation technique. To lay down the design guideline, the team sought reference material and solutions along various lines, including going along in person to a store structure next to the Ma On Shan Public Pier to study the connection points between the glass door's lever and the door track as well as seeking advice from expert glass door fitters. In addition, , team members visited building material depots in Chengdu during their training period to ensure suitable material and expertise were available for the manufacture of the glass door.

■ 助建小組參考香港的玻璃門設計
Hong Kong glass door design as reference

■ 助建小組考察成都的建材市場
Project team visiting building material depot in Chengdu

因製訂招標文件需要不少經驗及對行業技術有足夠的理解，對學生而言可謂較為複雜，所以不少土木工程師畢業生都積極參與招標文件的工作及提供相關意見。助建小組完成施工圖及列明所有招標條文及技術規定後，專業測量師便協助進行工程造價估算，確保幼兒園能有足夠的經費建成。

■ 畢業生積極參與及幫忙提供意見
Alumni zealously taking part and offering advice



As the compiling of an open tender document could be quite complex for the students as it required ample experience and adequate knowledge of technical aspects in the field, many civil engineering alumni joined in the efforts and offered advice. After the team had completed the construction drawings and set out all the clauses and technical requirements, professional surveyors offered help in the form of a costs estimate to make sure the kindergarten had sufficient funds for the construction.

■ 助建小組向蒙兆禧建築師請教有關建築細節的問題
Project team mentored by Architect Vinco Mung on architectural details

5.2 Help from the community

There were major differences between Chongzhou and Hong Kong in engineering management and construction operations, and the current kindergarten project also differed from previous Mingde projects involving schools and dormitories in rural areas in terms of quality requirements, regulations and legal liabilities. In view of this, the project team worked diligently under the mentorship of numerous civil engineering alumni to tailor-make the most suitable form of tender for the project, and to inject elements of Hong Kong style engineering management to enhance its management and construction. To ensure the quality of the construction work, the team had to pick the most suitable contractor as well as a supervision company to supervise the entire construction process. In laying down the standards for the choice of contractor, apart from considering their quotations, team members also visited the contractors and supervision companies and ascertained the quality of their past projects. The group also held interviews with these companies to find out more about their backgrounds and company information to determine their suitability for the project. During this tender process, the team realised the huge difference between this project and previous Mingde projects, and the wealth of knowledge it had brought them.

5.2 仗義相助

因崇州及香港的工程管理及施工運作相差較大，也與之前「明德工程」在鄉鎮興建宿舍及學校的水準要求、制度、法律責任等大為不同，助建小組在很多土木工程師畢業生的經驗分享及指導下花了不少時間來為項目度身訂造最適合的招標模式，並希望加入香港工程管理元素，以優化管理及施工。為了確保項目的施工質素，助建小組需要選出最合適的施工單位，也要聘請工程監理公司監察整個施工過程的情況，因而需要訂定立挑選施工單位的準則。助建小組除了考慮回標價外，還親身參觀施工單位及監理單位的辦工地點，以及了解他們已完成的工程項目，從而深入了解公司的施工質素，另外也特別安排了與施工單位及監理單位分別進行面談，了解更多有關公司的背景及資訊，以確定所選的施工單位及工程監理公司最適合為幼兒園進行重建的單位。助建小組在草擬招標文件期間深切體會到本項目與之前「明德工程」的計劃有很大分別，增進不少知識。

■ 「關懷行動」與貝鐳華顧問公司達成了合作協定
Agreement of Cooperation reached between Operation Concern and Beria Consultants Ltd.

2009年底，「關懷行動」梁教授在成都瑞安公司李志強總經理和他的團隊的安排下，與貝鐳華顧問公司達成了合作協定，令人振奮的是貝鐳華董事長伍又宣先生願意以不牟利的成本價為幼兒園重建項目招標的工作提供服務，雙方最終確定於確立了致力於2010年5月中旬完成設計圖紙審批後七天發標的目標。

Towards the end of 2009, under the arrangement of Mr. Lawrence Lee Chi-keung and his team of Shui On Chengdu, Prof. Leung of Operation Concern reached an agreement of cooperation with Beria Consultants Ltd. Most heartening of all, Mr. Peter Ng, Chairman and Director of Beria, kindly offered to provide open tender services for the kindergarten reconstruction project at cost price only. Both parties also agreed to set the date for open tender in mid-May 2010, and seven days upon the completion of the approval of the design.

5.3 公正評審

在貝鏘華公司、瑞安成都公司的幫助下，一共收到11家投標人報名希望參與投標，貝鏘華公司也按時完成了投標人資格預審報告。在徵得香港特區政府對招標安排的同意後，幼兒園的重建項目進行招標，設計院把施工圖交給貝鏘華公司，招標文件則由貝鏘華公司香港總部助理董事吳雯茵小姐負責製作，再由成都辦事處列印和裝訂，如期發出11份標書。助建小組於兩星期後到瑞安成都公司，與李經理和貝鏘華公司伍董事長一起開標，是次共收到9份回標。

5.3 Open and fair appraisal

With help from Beria consultants Ltd. and Shui On Construction and Materials Ltd. (Chengdu), eleven bidding applications for the open tender were invited. Beria also completed the pre-qualification report on the applicants on time. Upon agreement by the Government of the Hong Kong SAR on the tender arrangements, the kindergarten reconstruction project made preparations for the open tender. The Design Institute passed the construction drawings on to Beria Consultants Ltd., while the tender documents were prepared by Ms. Mandy Ng, Assistant Director of Beria at its Hong Kong Headquarters. Its Chengdu office printed and bound the documents which were sent out on time to the eleven applicants. Two weeks later, the project team met with Mr. Ng and Mr. Li of Beria for the open tender at Shui On (Chengdu). Nine quotations were received on the occasion.

■ 助建小組參與招標過程
Project team taking part at the open tender

面談與中標
Interview and successful bid

助建小組接著的三天在瑞安成都公司的會議室逐一與9家投標人(2家是成都公司，7家是崇州公司)進行了面談。開標結果顯示貝鐳華公司出的標底價與回標價相約、預算合符市價。最低標的是一所成都公司，崇州公司的標價一般較成都的公司高。翌日，助建小組到最低標價的成都公司視察，包括到該公司的總部參觀及到一個建築工地進行考察，並與公司的董事長和總工程師見面。

For the next three days, the team held individual interviews with the nine bidders (two from Chengdu and seven from Chongzhou). Their opened bids turned out to be similar to the base bid price set by Beria, indicating the costs estimate matched the market price. The lowest bid came from a Chengdu company while prices for the Chongzhou bidders were generally higher. The next day, the team inspected the Chengdu company with the lowest bid, including visits to its headquarters and a construction site, as well as meeting with its directors and engineers.

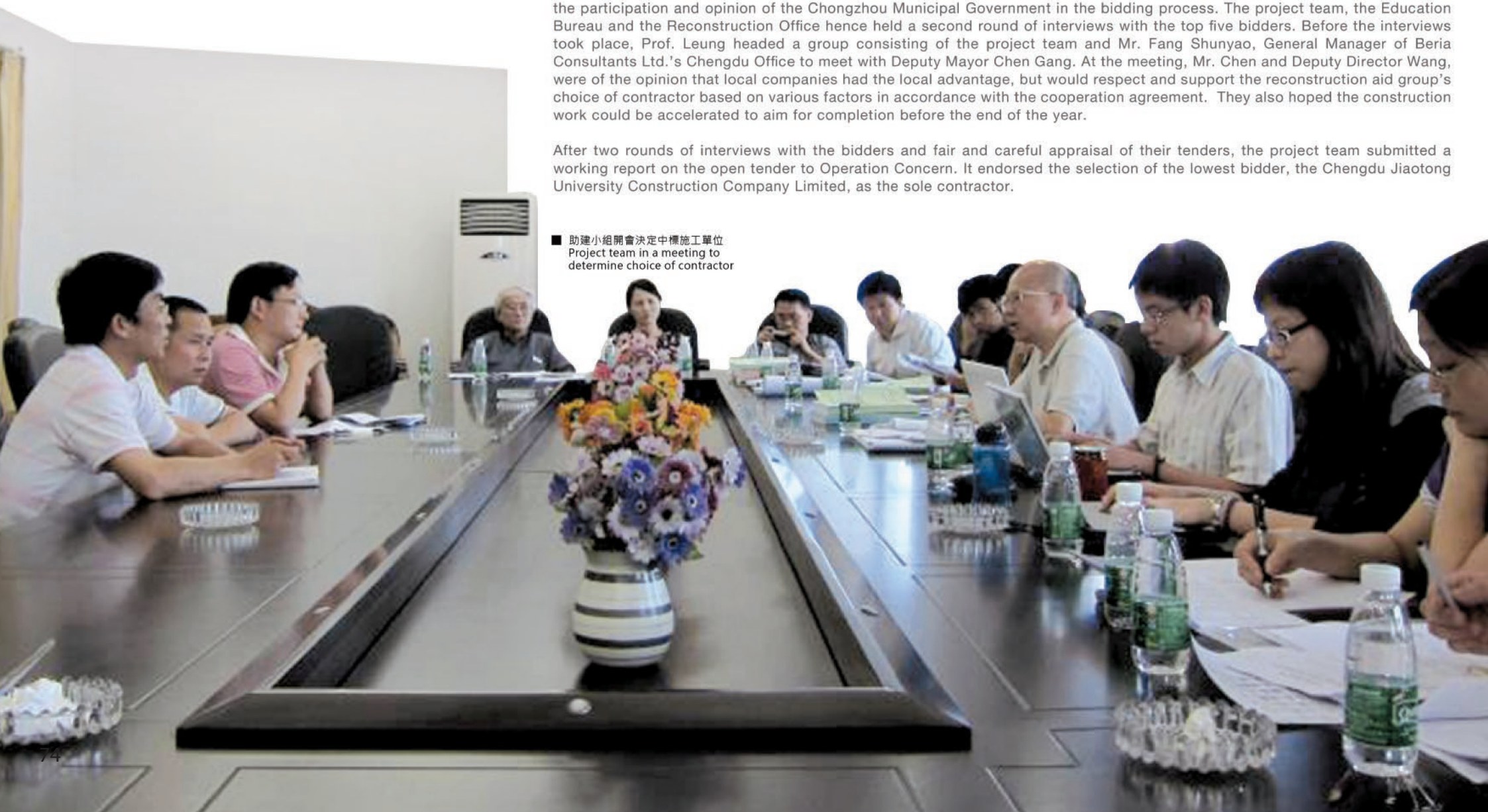
■ 助建小組與投標人面談
Project team in an interview with bidders

由於幼兒園往後歸崇州市政府教育局管理，所以助建小組希望崇州市政府能在招標過程中參與及提供意見，助建小組於是再與教育局重建辦跟投標價前五家投標舉行第二輪面談。梁教授特意親自帶領助建小組、貝鐳華公司成都辦事處總經理房順堯先生在面談前與陳副市長見面。席間，陳副市長和教育局王副局長相信本地公司佔有地利優勢，但尊重和支持援建方考慮各方面的因素，根據合作協定決定施工單位，亦期望加快施工進度，力爭年底前竣工。

經過兩次與投標人面談和公平審慎地評審標書後，助建小組向「關懷行動」提交招標工作報告，贊同以最低標價的成都交大建設工程有限公司為施工總承包人。

Because the kindergarten was to be put under the management of the Chongzhou Education Bureau, the aid group requested the participation and opinion of the Chongzhou Municipal Government in the bidding process. The project team, the Education Bureau and the Reconstruction Office hence held a second round of interviews with the top five bidders. Before the interviews took place, Prof. Leung headed a group consisting of the project team and Mr. Fang Shunyao, General Manager of Beria Consultants Ltd.'s Chengdu Office to meet with Deputy Mayor Chen Gang. At the meeting, Mr. Chen and Deputy Director Wang, were of the opinion that local companies had the local advantage, but would respect and support the reconstruction aid group's choice of contractor based on various factors in accordance with the cooperation agreement. They also hoped the construction work could be accelerated to aim for completion before the end of the year.

After two rounds of interviews with the bidders and fair and careful appraisal of their tenders, the project team submitted a working report on the open tender to Operation Concern. It endorsed the selection of the lowest bidder, the Chengdu Jiaotong University Construction Company Limited, as the sole contractor.



■ 助建小組開會決定中標施工單位
Project team in a meeting to determine choice of contractor

5.4 工程監理招標

為挑選工程監理公司，助建小組收集了在成都地區執業的十餘家工程監理公司的名單，分別發送電郵並邀請他們參加投標本項目的工程監理，一共收到三家監理公司的回音，表示有興趣參加投標。助建小組負責編制監理招標文件，列明作為幼兒園重建項目監理公司的職責，並委託貝鐳華公司發出和回收投標書，其中兩家公司按規定的時間和地點遞交了投標書。

開標由貝鐳華公司主持和記錄，是次共收到2份回標。助建小組首先審閱了兩家公司呈報的監理人員名單，並確定他們都具有國家或四川省政府機構頒發的專業監理工程師證書。第一家公司是崇州市本地的二級監理公司，有地利和人和的優勢，監理費較低。第二家公司是一級監理公司，有人才資源和技術的優勢，監理人員會較多到工地巡查，但本部設在成都，他們需要安排監理人員在崇州住宿，這可能是他們的監理費較高的原因。兩所監理公司均具競爭力。

5.4 Open tender for project supervision

For the choice of a supervision company, the team compiled a list of about a dozen licensed engineering project supervision companies in the Chengdu area, and invited them by email to bid for the supervisory work for the project. Three supervision companies replied to show interest in the bidding. The team was responsible for preparation of the documents for the open tender, setting out the responsibilities of the supervisory company for the kindergarten reconstruction project. It commissioned Beria Consultants Ltd. to send out and collect the tenders. Two of the companies submitted their tenders on time at the designated collection points.
The opening of the tender was conducted and recorded by Beria Consultants Ltd. Two bids were received. The project team vetted the supervisory staff lists as provided by the two companies, and ascertained that all of them possessed professional supervisory engineer's certificates issued by the state or the Sichuan Provincial Government. The first company was a local Class II supervision company from Chongzhou; they had the local advantage and charged a lower fee. The second company was a Class I supervision company which had an edge in human resources and technical expertise which would translate into more frequent site visits by supervisory staff. But as it was headquartered in Chengdu, they needed to arrange for accommodation for their staff in Chongzhou, which was probably why their fee was higher. Both companies were competitive.

技術要求 Technical requirements

助建小組在2010年7月初分別與兩家投標人面談。面談內容主要是圍繞本項目工程監理的職責，核實各投標人擬派的監理人員名單和瞭解他們對本身業務和對本項目的認識。

第一家公司對一般房屋建設的監理工作熟悉，但沒有建造幼兒園的具體經驗。第二家公司出席面談的監理人員在近三年內曾完成一些幼兒園工程，對幼兒園的施工要求比較熟悉。他們在面談中對本項目的施工提出了一些有參考意義的建議和意見。

助建小組考慮到本項目需要技術能力較高的工程監理，因為本項目的建築設計是由香港的建築師完成的，建築平面和立面較為複雜，工程與當地的普通做法大不相同，如外牆將採用現澆混凝土牆，即外牆脫模後的外牆牆面不抹灰，不能補回施工時的瑕疵，所以對施工管理及監理質素要求都很高。加上本項目的地基施工期適逢當地雨季，為確保施工安全，需要較為頻密的現場監理。本項目需要盡快完工，施工程序也比較緊湊，為減少施工出錯，助建小組認為監理人員到場工作天數及頻率較高，以及對建造幼兒園較有經驗的投標人比較適合擔任監理公司，令本項目能順利完工。第二家公司作為一級監理公司，在資源和技術上對現場監理人員的支援亦較有保障。

助建小組認真地比較了兩家監理公司，最後推薦了第二家公司。

The project team met with the respective bidders in July 2010. The content of the discussions revolved around the supervisory responsibilities for the project, and checking the two bidders' lists of proposed supervisory staff and finding out their knowledge of their trade and of the project.
The first company was familiar with supervisory work of general housing construction, but had no experience in the construction of kindergartens. The supervisory staff of the second company were more experienced with the construction of kindergartens as they had completed some kindergarten projects in the past three years. During the interview, they offered some interesting suggestions and ideas about the construction of the project in question.

The team felt that this project required a rather high level of technical expertise for its supervision, as the building design had been done by Hong Kong architects, and the floor plan and elevation design were more complicated. It would require construction procedures which were different from local methods, e.g. as the external concrete walls would be cast-in-situ with no further plastering after the demoulding, no corrections for any casting defects would be possible, and hence more quality construction management and supervision was needed. In addition, the foundation work for the kindergarten would coincide with the rainy season. To ensure better site safety, more intense on-site supervision was necessary. This project had to be completed soonest possible and the construction schedules would also be more tightly packed. To minimize construction errors, the team felt that the bidder whose supervisory staff would spend more days on-site and which had more experience in kindergarten construction would be more suitable for the project and for its speedy completion. The second company, being a Class I project supervision company, was more well-placed in its resource and technical support for its on-site supervisory staff.

The project team compared the two supervision companies carefully and meticulously and finally recommended the second company.

5.5 簽約動土

萬事俱備，施工合約的簽署儀式於2010年7月12日在崇州市政府會議室舉行，並由教育局王偉局長代表建設單位，羅斌先生代表成都交大建設工程有限公司簽署，「關懷行動」梁教授和「明德工程」郭博士作為雙方的見證人亦在合約上簽署。崇州市陳剛副市長、劉舫秘書長、王偉局長、王學斌副局長、香港特別行政區教育局尹一鳴高級行政主任、陳立仁行政主任和香港特別行政區政府駐成都辦事處文嘉嘉、梁教授、楊博士、雷教授、蒙建築師、陳工程師、郭博士、伍董事長、李經理、崇州市建築研究勘測設計院王玫副院長、劉華建築師、萬鑫工程師、和助建小組一同出席及見證了這個重要的儀式。

合約簽署儀式結束後，在幼兒園工地現場隨即舉行了隆重的動工儀式。動工儀式首先以幼兒園小孩子的演出開始、然後陳副市長和梁教授分別致辭，最後大家為奠基石培土，梁教授在講話中表心希望新的幼兒園是辦得最好的一所幼兒園。

5.5 Signing the agreement and groundbreaking

After they had decided on the design, the team received good news from Deputy Director Wang Mei. The Institute agreed to partner with Project Mingde to complete the design drawings for the kindergarten: Project Mingde would be responsible for the architectural design proposal, while the Design Institute would complete the construction plan and assist with its approval. The Design Institute's participation was crucial for the project, as Project Mingde's design proposal would officially become the reconstruction blueprint for the kindergarten. Also, members of the project team would attend practical sessions in the Institute during the summer holidays to complete the details of the design and the production of a construction plan.

■ 助建小組在幼兒園工地舉行動工儀式
Project team in groundbreaking ceremony on the kindergarten site

第 Chapter 6 章

迎難而上-施工與監工

Overcoming Hurdles - Construction and Supervision

6.1 正式動工

隨著簽署儀式的完結，工程正式展開。對於整個項目而言，施工是關鍵。要在有限時間、資金和資源的情況下，助建小組、有關政府部門、各個施工和監工的單位都需要緊密配合，讓工程能順利及準時完成，同時也要確保幼兒園的建築質素。

然而，工程尚未正式動工就已遇到難題。須知工地的出入口要保持暢通無阻以便工程順利進行，但工地出入口卻被電纜阻礙，影響工程車輛進出工地。全賴相關部門的配合，把電纜升高了一米，才能解決工地出入口問題。

同時，很多機械都要在施工期間使用電力，所以工地的電力供應系統亦不容忽視。除此之外，工程亦會產生廢水，雨季來臨的時候完成會令工地積水，所以助建小組亦要確保工地有效的排水及排污系統。

可是由於正東街路面剛重新混凝土覆蓋，根據當地建設局的規定，該路面在五年內不准開挖，幼兒園施工單位的供電公司亦不能挖電綫槽。助建小組並沒有能力獨立解決此問題，因而尋求市政府的協助。幸得陳副市長和劉秘書積極幫忙，在市政府會議室主持跨部門工作會議，邀請了建設局、規劃局、供電公司和教育局的負責人出席，出席的還包括施工單位、設計單位、幼兒園老師和助建小組。會上，陳副市長希望各部門和單位能夠互相配合，使正東街幼兒園的工作能順利完成。經過一輪商討，會議確定用高架電纜的方法，為工地供應電力。對於助建小組而言，這是一個難得的學習機會，讓他們在明白施工過程中與各單位聯繫的重要性。

至於施工期間的排水設施，助建小組跟不同單位協商並選擇以工地的出入口作為排水系統的收集點，以連接到附近的排水系統。

6.1 Construction officially begins

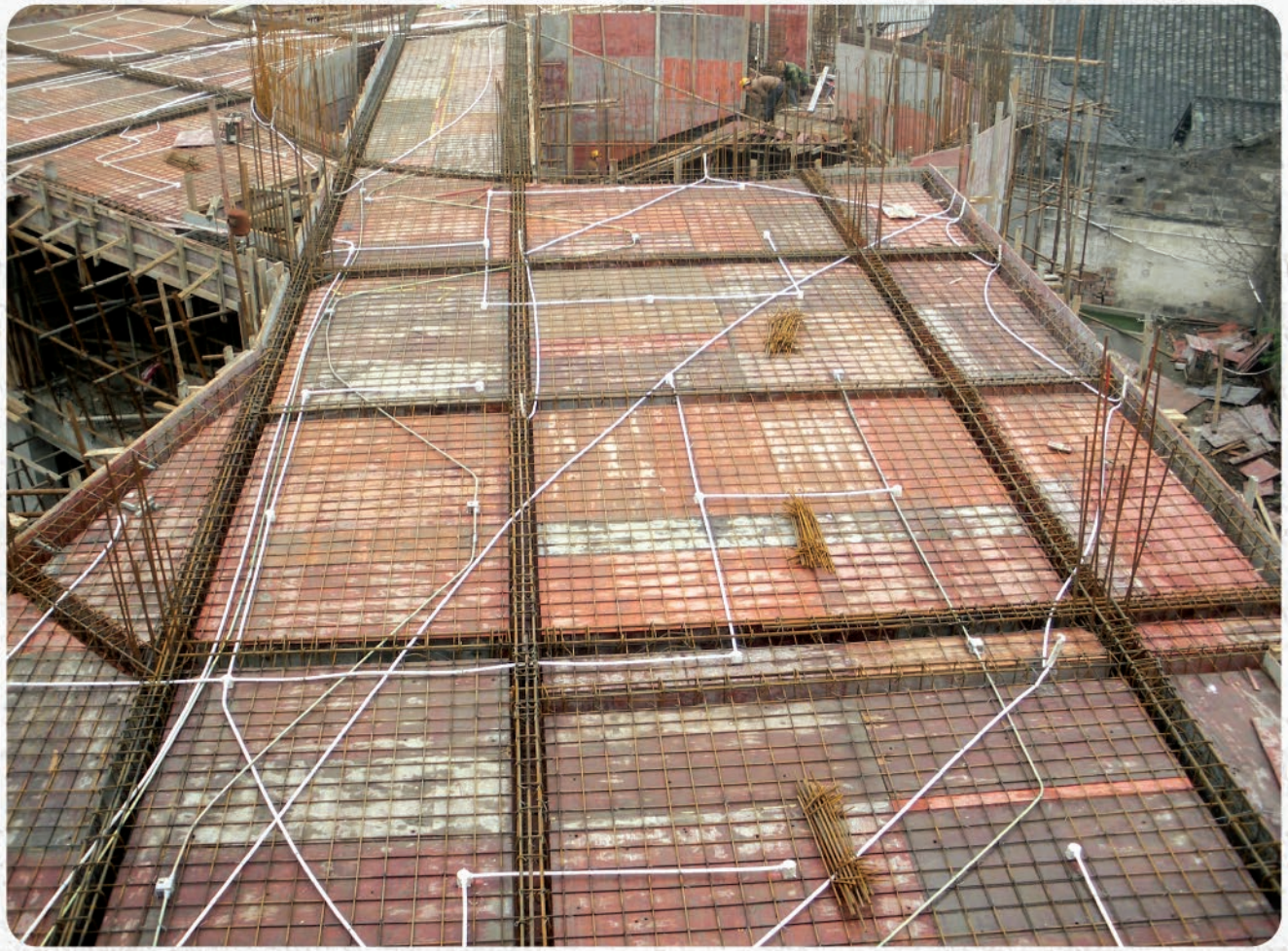
Construction of the kindergarten officially began in the wake of the signing ceremony. The construction process was the most crucial link in the whole project: with limited time and stretched funding and resources, the project team, relevant government departments, the various construction and supervision units had to complement one another in order to complete the project on time, while safeguarding construction quality.

Yet, hardly had the project begun than problems arose. The entry to the site had to be barrier-free for construction to proceed smoothly, but it was blocked by electric cables which caused a problem for construction vehicles. Thanks to the assistance from relevant departments, the electric cables were to be elevated by one metre, which solved the problem.

As much of the machinery would require electricity during the construction, the electricity supply system on the site was crucial. Also, the project team had to ensure an effective waste water system was in place as waste water would be produced during construction and puddles formed on the site during the rainy season.

However, as Zhengdong Jie had just been paved anew with concrete, according to the local Construction Bureau, that section of the street was not to be dug up in the first five years. Hence not even the electricity supplier for the kindergarten construction unit was allowed to dig up the ground for electric cable shafts. The project team had to elicit help from the municipal government. Deputy Mayor Chen, and Secretary Liu kindly helped by holding cross-departmental meetings at the municipal government offices comprising the Construction Bureau, the Planning Bureau, the electricity supplier and the Education Bureau, with the construction unit, the design unit, kindergarten teachers and the project team attending. Deputy Mayor Chen expressed his hope for various bureaux and units to complement one another to facilitate the construction of Zhengdong Jie Kindergarten. After a round of discussion, the meeting resolved to use elevated electric cables for electric supply to the site. For the project team, it provided an invaluable learning experience on the importance of liaising between various parties for a construction project.

Regarding waste water facilities during construction, the project team liaised with different units and chose the entry/exit point of the site as the collection point for waste water to be connected further to the waste water system nearby.



■ 施工中的工地
Site during construction

6.2 工程監控

為了確保施工質素，「關懷行動」同意助建小組的意見，聘請在香港有多年監理工作經驗的陳成先生為駐工地工程師，及委託助建小組作為「關懷行動」的項目代表和項目經理參與本項目的全過程。

6.2 Construction supervision

To ensure the quality of the construction, Operation Concern agreed to the project team's proposal to hire Mr. Chan Shing, who has a wealth of experience in construction supervision in Hong Kong, to be the resident engineer, and to appoint the project team to be its representative and manager for the entire project.

鑽探與地基
Drilling and the foundation

穩固的地基是新幼兒園抗震的基礎，一點也不能馬虎。助建小組在工程初期花了不少精力在確保地基的安全上。施工單位破土開挖南面基坑一天後，卻發現場地土質狀況與地勘報告不符及較預期差，助建小組建議調入一台鑽探機，在現場補充鑽探多7個鑽孔，以取得最準確的地層數據以改善設計。助建小組在考慮了最新的地層數據、技術可行性、工期和工程的資金等因素後，決定沿用原來的淺層地基設計，但將地基加深，並在泥質較差的軟土層換上低標號混凝土作鞏固，以配合實際情況，然後將修改後的方案交設計院審核。

因為加深了地基，設計更多地受到地下水的影響，因此挖掘地基的時候，地下水慢慢滲出地基，不時造成水浸，並使泥土變軟，增加挖掘工程的難度。為了不影響地基的質素，助建小組建議施工單位在場地附近做了兩個降水井，使地面的水浸情況得以改善，方便施工單位繼續動工。

As a solid foundation formed the anti-quake basis of the kindergarten, the project team should not be treated lightly. The project team spent a lot of efforts on ensuring the safety factor of the foundation in the early phase of the construction. The construction unit found, after one day's excavation to the south, that the soil conditions proved worse than stated in the survey report. The project team suggested deploying a drilling machine to drill seven more holes to obtain the most accurate stratigraphic data for a better design. After considering factors including the updated stratigraphic data, technical feasibility, construction time and funding and in a bid to observe practicality, the project team decided to keep the original shallow foundation design but would deepen the foundation and shift to low grade concrete for the poorer soil in the soft-soil stratum for consolidation. The project team then submitted the amended plan to the Design Institute for vetting.

On the other hand, as the foundation was deepened, underground water posed a bigger problem for the design. During the excavation for the foundation, underground water kept seeping out from the foundation, causing flooding and softening of the soil, rendering the excavation work all the more difficult. In order that the quality of the foundation was not compromised, the project team suggested that the construction unit construct two water-lowering wells, which improved the water-logged conditions and facilitated the ongoing construction process.

鋼筋質素
Quality of steel bars

在檢查鋼筋力學性能檢測報告中，助建小組意外發現內地鋼鐵廠的鋼筋出廠證明書與香港的大不相同。這些證明書普遍沒有提供鋼筋的重量，可是質檢站實驗室也沒有替鋼筋試件做重量檢查，因而無從驗證鋼筋的截面積，不能準確地反映鋼筋的力學性能。因而助建小組要求施工單位在鋼筋出廠證明書上加入鋼筋的重量，以確保鋼筋的質素。

The project team accidentally discovered in the steel bar strength tests inspection reports that steel bar certificates issued by mainland factories were quite different from those in Hong Kong. In general these certificates did not state the weight of the steel bars, while neither the quality control labs conducted weight tests, and so there was no way to ascertain the cross-sectional area of the steel bars to reflect their strength accurately. Hence, the project team demanded that the construction unit add the weights of the steel bars in their factory certificates to guarantee quality.

■ 檢查工地使用的鋼筋
Inspecting steel bars used on the site

選材
Choice of material

除了要注意建築結構的設計安全外，助建小組亦要確保施工物料的質素。助建小組為選要用一些方便維修的建築材料，考察了不同的材料供應商，包括成都建材市場、門窗工廠和瓷磚批發市場。助建小組也參考了物料供應商提供的資料，以便清楚瞭解物料的特性是否符合設計及合約的要求。根據合約規定，施工物料需要定期送往實驗室進行檢驗，以確保選用的物料是否合乎標準。

幼兒園的老師亦曾提及活動區與睡覺的房間因用木質地櫃隔開，故擔心地櫃會有有毒的化學物質釋出。助建小組和承建商都覺得老師的意見很有參考價值，所以大家在選材的時候，也特別留意木材的特性，留意生產的標籤有沒有列明這些安全標準或是通過國家的物料安全驗證。另外，建築師在挑選木門時，除了材料要堅固、實用和美觀外，木門的種類和開關的方向亦非常重要，以免開關的時候會弄傷小孩子。

Apart from paying special attention to structural design safety, the project team also had to ensure the quality of the building materials. In order to choose building materials that would facilitate everyday maintenance, it researched various building materials suppliers including building materials depots in Chengdu, door and window factories and wholesale tiles depot. It also studied the information provided by the suppliers to find out whether the properties of the materials met the requirements of the design and contract. According to the terms of the contract, construction materials had to be sent regularly to labs for inspection to ensure they conformed to the required standards.

Teachers of the kindergarten had also raised the question of toxic emissions from the wooden cabinets used to partition the room into activity and rest areas. Both the project team and contractor heeded the teachers' concerns, and hence when they chose the materials, they paid special attention to the property of the wood, such as whether the labels contained specified safety standards or whether they had passed national materials safety tests. Besides, when the architect chose the wooden doors, apart from sturdiness, practicality and aesthetic value, their type and direction of opening were also important to avoid injury to the children.

■ 通過安全驗證的木材
Wood that had passed safety tests

■ 禮堂的設計
Design of the auditorium

6.3 設計持續改善

為使幼兒園能更完善，工程施工期間，助建小組盡力考慮幼兒園老師們的意見，對設計作出改善。例如，因應小朋友的高度，助建小組加設了較矮的扶手確保小孩的安全。老師亦表示擔心原本設計的旋轉窗，在打開的時候會撞到小孩子，於是建築師調節了室內設施的設計與位置，從而減少小孩子接觸旋轉窗的機會。另外，老師和園長也表達了他們想多收早教班（即學前班）的學生，助建小組於是通過改變校長室的設計來增加早教室。礙於資金和時間不足，工程的修改是有限的，但助建小組依然在有限的資源當中力求完美。

6.3 Continued design improvement

To optimise the design and use of the kindergarten, the project team continued to make improvements to its design based on the teachers' suggestions. For instance, lower handrails were added to suit the height of the children and to ensure their safety. The rotating windows had been the teachers' concern as they might hit the children when being opened. The architect hence adjusted the design and positions of indoor facilities to minimise the incidence of contact with children. Also, both the Principal and teachers expressed their wish to admit more pre-school children, in which case the project team increased the number of pre-school classrooms by changing the design of the Principal's office. Though the changes made were limited due to insufficient time and funding, no efforts were spared by the project team to pursue perfection.

■ 樓梯加設扶手
Lower handrails were added to the staircase

天窗設計
Skylight design

在施工階段，助建小組為幼兒園禮堂的圓形天窗和旋轉窗進行更優化的設計，除了跟建築系的同學商討採光的設計，並考慮到禮堂很多時也提供學生作音樂活動，音響及收音效果都要提高，他們還參閱了內地對設計和技術的法規要求，並與香港作對比，擴闊了學生對國內建築要求的視野。天窗設計需要解決去水及防水問題，因為當地雨季時的嚴重降雨可能會使天窗積水及不勝負荷。助建小組發現天窗不能承托雨季嚴重降雨量的重量，其後再和建築系同學商討，在不影響本來的設計原則下，設計了一套簡單的收集雨水系統，並透過天窗斜度及其擺放位置的配合，建成一個有效及低成本的排水設施。

During the construction, to optimise the design of the circular skylight and rotating windows in the auditorium, apart from discussing with students from the architecture department regarding natural lighting, the project team was also aware that sound and acoustics were important as the auditorium would often be used as the venue for music activities for the children. The team also referenced design and technical requirements for design on the Mainland and compared them with those of Hong Kong, which widened their outlook on building requirements on the Mainland. For the skylight design, solutions had to be found for related drainage and water-proofing issues because the skylight might not be able to withstand the weight of rain during the heavy rainy season. The project team found that the skylight would not be able to carry the weight of rain during the rainy season. Under the principle of not affecting the original design, they then discussed with architecture students and designed a simple rain-collection system. Through an appropriate gradient of the skylight and suitable siting, a low-cost and effective drainage system was built.

優化抗震
Optimising anti-quake properties

為讓小孩子們看到圍牆外的景物，故而提出了在牆身裝上一個個大小不同的小孔洞，讓小孩能看到外面的世界。特色的設計卻為助建小組帶來難題。到了施工階段，助建小組考慮到走廊圍牆若以磚塊建造，雖然建築靈活性較高，但會降低抗震能力，若遇上地震小孩子便有機會被震碎的磚塊壓傷；若以混凝土建造，雖能提升抗震能力，但孔洞的建造將較為複雜，對手工的要求也較高，施工時間也較長。助建小組透過組員間的討論，最後想出了解決辦法，取兩者之長，決定在走廊小孔洞附近位置以磚塊建造，確保孔洞方正美觀，而上下均以混凝土固定磚塊的位置，也在適當位置加設小柱及橫梁，使圍牆更鞏固安全。

In order for the children to see the world outside, it was suggested to install various-sized holes on the walls. However, this design feature posed a problem. In the construction phase, the team found that if bricks were to be used for the walls, though they might be more flexible, they had lower anti-quake properties, which might result in injuries by debris in the event of an earthquake. If concrete was to be used, though its anti-quake properties were superior, the construction of the holes would become more complicated and more demanding of workmanship and time. After some discussion, the team came up with a hybrid solution: bricks would be used near the holes to ensure their aesthetic balance while concrete would be used in the top and bottom parts to hold the bricks in place. Columns and beams were added at suitable locations to make the walls safer and more secure.

6.4 驗收

為了保證幼兒園的品質檢驗和小孩子的健康和安全，助建小組及後設立多輪的驗收安排，讓不同的單位為幼兒園進行檢驗。最後由教育局發函確認由建設單位負責消防驗收，幼兒園的竣工驗收才順利完成。

6.4 Inspection and Certification

To ensure good quality control and the children's health and safety, the project team put in place several rounds of inspection for certification to allow different units to inspect the kindergarten. With the Education Bureau issuing a letter confirming that the contractor was to be responsible for fire safety inspection and certification, the kindergarten was finally completed.

■ 施工中的牆身孔洞
Holes in the wall during construction

■ 從外面看到的孔洞
Holes seen from outside

第

Chapter 7

章

大功告成 - 竣工與移交

Mission Accomplished – Completion and Handover

7.1 美滿的完工

經過三年多的努力，正東街幼兒園重建項目終於在2011年11月11日 順利完工。

7.1 Job well done

After more than three years' tireless efforts, the reconstruction of Zhengdong Jie Kindergarten was finally completed on 11 November, 2011.

■ 美滿的完工
Job well done

■ 幼兒園的設計模型
Model of kindergarten

幼兒園的重建，不僅只限於老師家長、助建小組、兩地政府的參與，就連年紀小小的小朋友，也可以成為學校園徽的設計者。在幼兒園的一次寫字比賽裏，助建小組從中選出小朋友寫的中英文字作為校園牌匾的設計。

Not only did parents, teachers, the project team and the Hong Kong and mainland governments took part in the reconstruction of the kindergarten; even the children became the designers for the kindergarten emblem. The project team chose English and Chinese characters from a calligraphy competition of the kindergarten to form part of the kindergarten emblem design.

正东街幼儿园

Zhengdongjie Kindergarten

■ 這些會跳的文字，令整個園徽的設計增添不少生氣，孩子們的爸爸媽媽也很喜歡呢!
These lively characters lend much to the kindergarten emblem design; the parents just loved it!

■ 新園徽的特大圖
New emblem enlarged

■ 校園牌匾的設計圖
Designs of the plaque for the kindergarten

在這個助建項目裏，助建小組對每一個小節都一絲不苟，每一個設計也花了不少心思，即使是一張小小的紀念卡也不敢怠慢。

The project team was meticulous down to the last detail; every design was a labour of love. Even a small commemoration card merited great care.

■ 助建小組設計的紀念卡（正面）
Commemoration card designed by the project team (front)

■ 紀念卡內頁，每一個卡通人物代表助建小組不同的角色，你又能認出多少個呢？
The inner page of the card features cartoon characters representing different roles from the project team. How many can you recognise?

■ 幼兒園的老師很有心思，在校園的一角畫上跟紀念卡一模一樣的畫，以紀念助建小組付出的一點一滴
The thoughtful teachers of the kindergarten paint a copy of a picture from the card on the wall: a gesture to celebrate the efforts of the project team

“李蓉老師：由於幼兒園是那區唯一一所由香港人所建的學校，因此大家覺得幼兒園的結構穩固，安全性高。再加上幼兒園老師的師資透過培訓而提高了，教學更互動了，所以很多家長都希望把孩子們送進來，幼兒園可是區內名校呢！”

“Teacher Li Rong: As our kindergarten is the only campus built by Hong Kong people, we all feel the kindergarten is structurally very safe and secure. In addition, with professional development, the quality of our teachers has been raised and teaching is more interactive. This is why many parents want to send their children here. Ours has actually become a prestigious kindergarten in the district!”

在2011年11 月14 日，正東街幼兒園正式交到王園長和一眾老師的手裏。施工單位與幼兒園首先做了一次巡視，列出最後的整改清單，並簽署交接檔。文件保證在兩年保質期中施工單位將負責全費處理因為施工品質引起的問題，以及提供正確使用和保養各種建築設施的方法。從這一天開始，幼兒園的老師們便正式接管幼兒園，負責新校舍的安全、維護、保險、運作等的全面責任、正確使用和保養各種建築設施。而接收幼兒園後，老師們均加班進行環境創設，希望小孩子們能在最好的環境下上課。

On 14 November 2011, Zhengdong Jie Kindergarten was officially handed over to Principal Wang and teachers. The contractor and the kindergarten first conducted an inspection of the campus, making a list of adjustments and corrections to be made and signing for the handover. The document guaranteed a two-year warranty during which the contractor would deal with any problems arising out of construction quality, and provide instructions on the correct use and maintenance of the various construction facilities on campus. From this day onwards, the teachers of the kindergarten would officially assume control of the kindergarten, and take full responsibility for the safety, protection, insurance, operation and correct use and maintenance of the construction facilities of the campus. After the handover, the teachers all worked overtime to set up the campus to create the best learning environment for the children.

“經過一年多的建築，當陳成工程師將嶄新的幼兒園園舍交給我們時，我們心裡的感動是無與倫比的。相信我們的孩子、老師在這樣美麗、充滿童趣的環境中學習、生活和工作心裡會充滿感恩之情，會加倍的珍惜來之不易的幸福”

“After more than one year’s construction, when Engineer Chan Shing handed over a brand new kindergarten campus to us, we could not describe how moved we felt. To be able to live, learn and work in such a beautiful environment filled with childhood happiness, I believe both the children and the teachers will be filled with gratitude, and cherish this hard-won bliss.

■ 小朋友享受幼兒園的設施
Children enjoying the kindergarten’s facilities

7.2 設計回顧

助建小組花了不少心血在幼兒園的設計上，在落成後，助建小組都逼不及待觀察幼兒園的使用情況。

由於校園空間有限，洗手間內的洗手盆是非傳統的一列排開的出水位，而是採用了圓形設計，好讓幾個水龍頭能聚在一起，更能大大節省空間。

7.2 Design review

Having spent so much effort on the design of the kindergarten, the project team could not wait to see the design in use.
As space for the kindergarten was limited, the wash basins in the toilets were circular in shape with the taps grouped in the middle instead of the traditional linear line-up, which saved much space.

■ 小朋友歡聚於洗手盆
The children gathering happily at a wash basin

"羅童於老師：現在學校不但是小孩子的學習地方，更是他們的家和探索地。水龍頭的設計甚得小孩子們的欣賞，他們都十分享受與夥伴聚在一起洗手的時刻呢！"

"Teacher Luo Tongyu: "Not only is the kindergarten a place of learning for the children; it is also their home and a place for exploration. The tap design is a boon for the children. They enjoy very much washing their hands together!"

圓柱形禮堂的頂部是由玻璃旋轉天窗組成，是天然採光的設計。有家長就特別欣賞旋轉天窗的設計，並對校園的採光和通風感到很滿意。

The cylindrical auditorium consists of a set of rotating skylights, a design to let in natural light. Some parents are particularly fond of the rotating-skylight design, and are very happy with the natural lighting and ventilation of the campus.

■ 圓柱形禮堂的內部天橋
Internal footbridge inside the cylindrical auditorium

“家長：教室牆面到處都是大小不一的正方形玻璃窗戶，還有180度的旋轉窗，採光和通風都非常好，窗戶上面擺了好多小植物，既美觀又綠化。教室裏有空調、油燈、空氣消毒機等，現在的條件真的是太好了！”

“設計師:特意在與孩子身高相若的地方預留一排排小小的開口，讓孩子得以「童眼」看世界。在校舍啟用時，看見一顆顆黑色小腦袋興奮又好奇的往開口探頭張望，樂此不疲，不難想像孩子們對其的喜愛。”

“小孩子：我們教室門口的陽臺上有好多的小洞洞，好漂亮啊！我喜歡在小洞洞看外面。哈哈！”

"Parent: There are many different-sized square-shaped windows on the classroom walls, as well as 180 degrees rotating windows. Both natural lighting and ventilation are good. The indoor plants placed in front of the windows are pretty and green. There are air-conditioning, oil lamps and air purifiers; the present conditions are really wonderful!"

"Designer: Rows of small openings are placed at the children's height so that they can view the world from a children's perspective. On the first day of school, small black heads could be seen sticking out curiously from those openings with wondrous exuberance, which shows their fondness for these openings."

"Children: There are many small holes on the balcony outside the classroom. How pretty they are! I like peering out from these holes. Ha ha!"

7.3 開學了

新園舍正式在2011年12月2日啟用。而「正東街幼兒園」這六個字皆出自幼兒園學童的手筆，而園名牌是由香港理工大學設計學院師生幫助完成的。小孩子們第一天在新教室上課，家長和孩子都很喜歡新校舍，他們對於能在這麼漂亮的地方上課都雀躍不已。

7.3 School begins

School began on the new campus on 2 December 2011. The six Chinese characters of Zhengdong Jie Kindergarten were written by students, while the plaque was made with help from faculty members and students from the School of Design of the Hong Kong Polytechnic University. On their first day of school, both parents and children were thrilled by the new campus, rejoicing in being able to study in such a beautiful campus.

■ 小朋友的佳作
Children's artwork

“小孩子：新幼兒園好漂亮，我最喜歡哈哈鏡。我要帶爸爸媽媽，爺爺奶奶，還有所有人來幼兒園！”

"Children: The new campus is beautiful. I like the distorting mirror most. I want to take mom and dad, grandpa and grandma and everybody here!"

重建工程竣工典禮在2011年12月17日早上在正東街幼兒園圓型禮堂舉行。儀式由王園長主持，並致感謝辭。幼兒園小孩子首先進行表演朗誦和演唱。典禮上，「正東街幼兒園」的園名和園徽由梁教授、香港特別行政區政府發展局四川重建組組長麥齊光教授、崇州市陳副市長、四川省港澳辦主任郭嘉農共同揭幕。

The reconstruction project completion ceremony was held on 12 December 2011 at the circular auditorium of the Zhengdong Jie Kindergarten. The ceremony was presided over by the Principal of the kindergarten Ms. Wang, who gave a vote of thanks. Then the children presented verse speaking and singing. During the ceremony, the name and emblem of the Zhengdong Jie Kindergarten were inaugurated jointly by Prof. Leung, Prof. Mak Chai-kwong, Team Leader, Sichuan Reconstruction Team, Development Bureau, The Government of the Hong Kong Special Administrative Region, Deputy Mayor Chen, and Mr. Guo Jianong of the Hong Kong and Macao Affairs Office, Sichuan Provincial Government.

■ 小朋友於幼兒園內愉快學習
Children learning happily in the kindergarten

7.4 互相學習

重建正東街幼兒園不單給小孩子提供了一個學習的地方，也為國內與香港的工程師、建築師和設計師提供了地震災後共同合作的平台，在樓宇結構安全上作出了重點交流，並在設計標準基礎上進一步提高。

近百名土木工程系大學生分階段地參與了這項工程，從規劃、設計、招標、施工管理到落成驗收的整個過程。他們通過參與「明德工程」，都感受到收穫比付出的更多更大。隨著重建正東街幼兒園的項目完成，不少助建小組的同學也將完成他們的大學學業。正東街幼兒園這個項目見證了他們的成長，成為了他們大學生活的一部份。對參與助建小組的同學來說，他們是與幼兒園一起成長，一起畢業。因此，參與這項工程又即將畢業的學生們都紛紛帶著畢業袍和帽子來到幼兒園拍畢業照。那一天，空氣瀰漫著喜悅，興奮，不捨和感動。

7.4 Learing from one another

Not only has the reconstruction of Zhengdong Jie Kindergarten provided a place of learning for the children; it has also created in the wake of the earthquake a platform of cooperation between engineers in Hong Kong and on the Mainland, architects and designers, and enabled key exchange on the structural safety of buildings, and the enhancement of design standards.

Nearly 100 civil engineering students participated in the entire project at various stages, from planning, design, tender, construction supervision to completion and certification. Through taking part in this project, they all felt the rewards were much greater than what they put in. At the same time when the Zhengdong Jie Kindergarten project was about to finish, many members of the project team were graduating from university. This project witnessed their growth and formed an integral part of their university career. For those students who had taken part, they had grown up with the kindergarten and graduated together. Many graduating participants hence had their cap and gown photos taken at the kindergarten. That day was a day of joy, excitement, and poignant reflections.

“助建小組成員莊德齊：我是負責工地監工的同學之一，本來我還不確定自己畢業後想要做哪一範疇的工程工作。但是在那年我負責在工地監工的暑假，我發現自己比較適合在工地工作。畢業後，我找了一份在工地監工的工作。很開心能在參與組建小組時發現我的愛好和長處。”

“目睹新幼兒園大樓，從設計圖紙，到紙板模型，到拔地而起，作為參與其中的一員，我們感到特別的喜悅。參加「明德工程」，讓我們有機會為地震災後重建出一份力，也讓我們收穫了在學校課堂上學不到的寶貴知識和經驗。”

“Project team member Albert Chong: I am one of the students responsible for site supervision. I had not decided what engineering field I would go into upon graduation, but after the summer vacation during which I worked as a site supervisor, I found I was more suited to working on a site. After graduation, I found a site supervision job. I am very happy I found my vocation and strengths while I served on the project team.”

“As a participating member, we feel joy and excitement in witnessing the initial design on paper and the board model growing into a concrete building. By taking part in Project Mingde, we have been able to contribute to the post-quake construction as well as gaining much valuable knowledge and experience which is hard to come by in the classroom.

「明德工程」的參與，賦予了這項抗災援建工作深刻的意義。它不但代表了「關懷行動」對崇州市年輕一代的關愛，而且讓香港的年輕一代得到了難得的機會，通過親身參加災區重建工作而得到鍛煉，甚至幫助工程系學生找到未來的路向。雖然重建項目已順利完成，但正東街幼兒園老師們為能不斷提高教學質素，都會定期訪港參加教師交流會和進行培訓，不斷增值和學習不同的教學方法，只求孩子們能在一個愉快的環境開心地學習和成長。

The participation of Project Mingde has imbued a deeper significance to this disaster relief reconstruction work. Not only has this project represented Operation Concern's care for the young generation of Chongzhou; it has also provided the younger generation of Hong Kong with a rare opportunity to enhance themselves through participation in the reconstruction, and helped engineering students to find their future paths. Although the project was completed smoothly, in order to enhance the quality of teaching, the teachers of Zhengdong Jie Kindergarten have been visiting Hong Kong on a regular basis to participate in exchange conferences and training programmes for continuous professional development, with a view to providing a happy learning environment for the children.

"張莉老師：明德工程的學生很團結，刻苦耐勞，盡心盡力的為小孩子們建著學校，所以小孩子們也很喜歡來自香港大學的哥哥，姐姐們，很多小孩子更立志長大後要成為土木工程師。"

"Teacher Zhang Li: The students of Project Mingde were hard-working and showed good teamwork. They gave their all to build a kindergarten for the children. This is why the children love the students from HKU. Many children say they want to be civil engineers when they grow up."

"王園長：我覺得幼兒園並不只是一個建築物，而是帶給我很多的意義。在修建期間，香港的義工遇到困難，我覺得香港人做事風格跟我們不一樣，對社會有責任感。雖然不幸遇上地震，但我們幸運地遇到一班有心人。郭博士，楊教授，梁教授已經成為我的朋友。從他們身上學到很多，這不只是有關幼兒園的問題，而是對人對事的態度，這正正影響著一班老師的轉變。"

"Principal Wang: For me the kindergarten is not only a building; it is significant on many levels. During the construction phase, the volunteers from Hong Kong met with many setbacks, but they had a different working style from ours; they had a different sense of social responsibility. The earthquake has been a disaster, but luckily we have met a group of kind-hearted people. Dr. Guo, Prof. Yeung and Prof. Leung have become my friends. I've learnt so much from them, not only pertaining to issues of the kindergarten, but also attitudes towards people and issues in general. It is having an impact on the teachers as well."


我的话语
同心
正东街幼儿园
崇州市正东街幼儿园园刊
重建过程照片
正东街幼儿园灾后重建历程

搬家啦！

2011年12月2日，全园师生迎着初冬的暖阳，兴高采烈地搬入了新园。老师们一早就在幼儿园大门迎接着宝贝们，一个中班的小朋友刚走到幼儿园大门口就拍着手向老师表达她的喜悦，家长们自发地带着许多花草祝贺新园落成。看到幼儿娱乐设施、消防设施一应俱全，小朋友和家长们都露出了甜美的笑容。让我们来听听家长和孩子们对搬入新园有什么看法呢？

壮壮班曹砚淳家长：在幼儿园的园务公开栏里我看到了新幼儿园的《幼儿园建筑工程室内空气质量》检测报告，这让我十分的安心，老师们如此的细心和贴心，孩子交给幼儿园我们家长最放心。

彩虹班陶川家长：教室墙面到处都是大小不一的正方形玻璃窗户，还有180度的旋转窗，采光和通风都非常好，窗户上面摆了好多小植物，既美观又绿化。教室里有空调、油汀、空气消毒机等，现在的条件真的是太好了！

豆豆班高鸣野家长：幼儿园里有好多新玩具，放学接儿子的时候他都舍不得走，总是要玩到很晚。现在每天早上一早就闹着早点上幼儿园。

乖乖班吴雨泽家长：站在新幼儿园门口看的时候觉得不是很宽敞，一走进去才发现，里面又大又漂亮！我送了孩子后在幼儿园绕了几圈才转出来，好像一个迷宫哦！

苗苗班胡艾宁：新幼儿园好漂亮，我最喜欢哈哈镜，我要带爸爸妈妈、爷爷奶奶、还有全部的人一起来上新幼儿园。

贝贝班王逸睿：妈妈带着我送了漂亮的花到贝贝班新教室，教室里的小床比家里的还漂亮，新被子也很漂亮，被子上面还有正东街幼儿园的名字呢！

点点班姚晶欣：我们教室门口的阳台上有好多的小洞洞，好漂亮哦！我喜欢在小洞洞里看外面。哈哈！

星星班冉博今：新幼儿园里有漂亮的小桌子、小椅子、我们的图书角里有好多的新书，坐在小沙发上看书、下棋真好玩。

叮当班刘若茜：我们收集了好多漂亮的树叶、盒子、罐子，我们要和老师一起把我们的新教室打扮成幼儿园里最漂亮的教室。

乐乐班刘翰林：楼下圆柱子上有好多片大树叶，好像绿色的小船，下雨的时候我们可以在树叶下躲雨，老师说这里是小朋友们看书的地方，我们好开心有这么漂亮的地方。

开园第一天，孩子们带着欢快的心情来到了新园

王园长到各班和孩子们分享迁新园的喜悦

独特的设计，独特的幼儿园

安全至上是设计的最重要原则

安全至上是正东街幼儿园灾后重建设计优先考虑也是最重要的原则，设计师依据灾后国家关于校舍建筑安全以及抗震安全的最新要求，在设计时将设计标准在国家标准基础上进一步提高。首先，校舍采用现浇混泥土框架剪力墙结构，每平米钢筋用量高于标准约百分之二十，校舍基础施工方案在原设计方案上又投入大量资金进行优化处理。其次，为方便师生紧急疏散，教学楼共设置了4个上下楼梯（安全出口），全园任何一个教室离最近楼梯的最远距离不超过30米，在紧急情况下可以在最短时间内将师生疏散到安全区域。再次，校舍装饰材料的选择，我们都采用低辐射、绿色、安全、环保材料，经专业部门检测幼儿园室内空气各项指标均达到国家标准。

科学合理的布局是设计的重大成就

正东街幼儿园属于原址重建，需要设计9个班的教学规模，占地面积不足5亩，而且地形很不规则，这给设计师的设计提出了较高的要求。经过香港和崇州两地设计师的共同努力，因地制宜，加上科学和富有创造性的设计，通过二十多次修改，最后完成了图纸设计。幼儿园虽然占地面积小，但是教室和功能室齐全，学生活动场所较多，而且相对独立，完全可以满足幼儿园教育教学的需求。

简约外形与丰富内涵是设计的重要特点

幼儿园的外观采用较为简约明快的现代风格设计，辅以独特的挑檐、楼柱、门窗，给人感觉建筑富于变化而不呆板。进入教学楼内部，由于建筑复杂的结构，给人一种一步一景的感觉，每转一个弯，每上一层楼，景观都在变化，这样既满足了孩子的好奇心，激发他们探索的欲望，又有利于孩子的身心健康发展。

■ 幼儿園出版第80期園刊（重建特刊）· 登載部分家長和學童對新園舍的觀感。
Kindergarten publication – 80th issue of the kindergarten publication (special edition on the reconstruction) carrying some parents and children's thoughts on the new kindergarten.

■ 幼兒園師生及助建小組大合照
Group photo of the project team and teachers and children of the kindergarten

■ 助建小組大合照
Group photo of the project team

心手相連，感恩有愛

Helping hands and caring hearts

12月，这是一个美妙的季节。

四年前的12月，我们搬进了重建三年半、凝聚了众多爱心的幼儿园。2日，全体孩子入新园就读，比阳光更明媚的是孩子、老师、家长们的笑脸；17日，我们的庆典隆重而热烈，那张全体教职工和助建小组前门的合影被珍藏，天空有些阴冷，但是每个人心里都是温暖的。

四年后的12月，当我们正在全园开展“我爱我的幼儿园”系列主题活动，正在回顾正东街幼儿园的历史，正在和孩子们一起感恩重建，正在和老师们商讨要不要把12月17日确定为“正东街幼儿园园庆日”的圣诞前夕，收到了来自助建小组的邮件，荣幸而惶恐的收到了一份邀请，希望能够记录下我们一起走过的时光。

文字是拙劣的，但那却真真是一段难忘的回忆，在我的生命里非常珍贵的一段日子。

那是一段难忘的回忆，因为地震，因为灾难，我是不幸的，我们的校舍损毁，我们的孩子惶恐，我们的老师无法正常陪伴孩子们；但我又是幸运的，因为爱心援建，因为远在香港的牵绊，我结识了一群优秀的人，我尝试了幼儿教育以外的努力，我学会了严谨做人做事，我体验到了社会责任感的重要。

记得那年中秋节，板房里其乐融融的第一次聚会，滨河路虔诚升腾的祈福灯，还有那么多年轻热心的真诚面孔……接下来的一次一次，我们看到了助建小组的专业与努力，我们更感受到了设计对孩子对老师的尊重。展示方案、讨论细节、询问要求，从一开始就注定这是老师们自己的幼儿园。

但这里更是孩子们的幼儿园——顶楼天台晒太阳，底楼操场遮风雨，走廊小洞洞看世界，孩子们每天就在这个神秘的地方发现，探索，快乐着。

就在上个月，幼儿园正式通过了成都市教育局验收，被评定为成都市一级幼儿园。同时，我们更迎来了包括四川省、重庆市、成都市、绵阳市、汶川、映秀等地幼儿园园长和专家的交流学习。成都市教育局专家来园给我们的评价是“这是一所丰富实在、有味有爱的幼儿园。”

今天，我们正在积极筹备幼儿园搬入新园4年以来的第二届新春庙会。越来越多的人走近正东街幼儿园，了解正东街幼儿园，喜欢正东街幼儿园。

始终记得庆典上，梁教授说，正东街幼儿园是我们心手相连共同的幼儿园，我更愿意相信她是我们共同播下的一颗爱的种子，在崇州，在香港，在孩子们心中，在家长心中，在老师心中，在你我心中！

正东街幼儿园　　园长
王晓燕
2016年1月

December is a magical time of the year.

In December four years ago, we moved back into the kindergarten that had taken three-and-a-half years and many kind souls to rebuild. On the 2nd, all the children reported to class on the new campus. Brighter than the sun were the smiling faces of the children, teachers and parents. On the 17th, the kindergarten was inaugurated in a solemn yet hearty ceremony. The photo taken of the entire staff and the project team to commemorate the occasion is now being kept as a precious memento. The air on that day may have been a bit cold and damp, yet our hearts felt warm.

It was again December but four years later. We were busy holding the “We love our kindergarten” series of activities -- reviewing the history of Zhengdong Jie Kindergarten, teaching gratitude to the children about the reconstruction, and discussing with the teachers on Christmas Eve whether to make 17th December the “Zhengdong Jie Kindergarten Day” – when I got mail from the project team. I felt honoured though a bit nervous at their invitation to write an account of our shared experience.

Words cannot do justice to the unforgettable memories of this shared journey, an experience I will treasure and cherish all my life.

It was no ordinary experience. We were unfortunate because of the earthquake, a dire disaster: our campus was damaged, our children badly shaken, and our teachers could not take care of the children the normal way. Yet I was also fortunate; fortunate in the sense that through the reconstruction and a link to faraway Hong Kong, I got to know a group of distinguished individuals; I took on challenges that went beyond early childhood education; I learned to conduct myself and deal with issues with rigour; I realised the importance of social responsibility.

I still remember the cheerful mood at our first meeting in the prefabricated sheds during Mid-Autumn Festival, the sky lanterns on Binhe Lu rising high with our prayers, and the many earnest and youthful faces brimming with enthusiasm. Time and again we were struck by the professionalism and diligence of the project team, and their respect for both children and teachers alike. From the word go – from presenting the proposals, discussing the details to ascertaining our needs -- the kindergarten was designed and built with the teachers in the foreground.

Yet, it is even more a children’s kindergarten. Basking in the sun on the rooftop, shielded from wind and rain on the covered playground, and viewing the world through the small holes on the walls – our children are happily discovering and exploring this mysterious place.

Just last month, the kindergarten was officially inspected and certified by the Chengdu Education Bureau and rated Class I Kindergarten of Chengdu. At the same time, kindergarten principals and experts from Sichuan Province, Chongqing, Chengdu, Mianyang, Wenchuan and Yingxiu etc. have visited us for professional exchange. An expert from the Chengdu Education Bureau commented on our kindergarten as “one that is rich and solid, humane and loving”.

Today we are busy preparing for the second New Year Fair since we moved back to the new campus four years ago. More and more people are approaching Zhengdong Jie Kindergarten, getting to know Zhengdong Jie Kindergarten, and liking Zhengdong Jie Kindergarten.

Professor Leung once remarked at the inauguration ceremony that Zhengdong Jie Kindergarten was one that held our hands and hearts together. I would like to take it further: it is a seed of love we have sowed together in Chongzhou, in Hong Kong, and in the hearts of the children, the teachers, the parents and you and me!

Wang Xiaoyan
Principal, Zhengdong Jie Kindergarten
January 2016

結　語
Epilogue

跋

2008年5月12日四川省汶川發生8.0級特大地震，受嚴重破壞地區面積超過十萬平方米，香港隨即湧現無數有組織的或自發式的愛心團體，四出募捐救災。在各式各樣的救災募捐進行得如火如荼的時候，我收到一位工程師發來的電郵，詢問明德工程[1]會否有救災的行動或計畫，他非常希望能够參加；這位工程師是香港大學土木工程系的畢業生，求學期間曾經參加過明德工程在廣西的助學活動。收到他的電郵後，我雖然被他的愛心和激情感動，但還是回覆說暫時應該先耐心觀察，因為中央及地方政府都忙着在現場救災，情況極為緊急混亂，明德工程沒有即時動員或救災的能力，我們不能為當局添亂。不想過了不久，當年在利希慎基金工作的雷競璇博士就來了電話，說有一位中文大學的舊同事希望約我見面。見面時出現的，竟然是大名鼎鼎的骨科聖手梁秉中教授，梁教授和他關懷行動[2]的醫療團隊不僅災後第二週就到了四川現場救傷，還爭取把一些倒塌了的相關醫療設施盡快恢復使用。結果，我和他兩人跑到了成都市附近的災區大邑和崇州去視察，結論是明德工程幫不上這個忙。由于關懷行動連續十四年在當地的輔導醫療和教學表現出色，崇州市要求梁教授這位全國人大代表協助重建一些政府暫時照顧不上的受災設施，正東街幼兒園就是我倆在其後視察中選定的項目。

梁教授對明德工程其實沒有太多認識，僅憑我的一面之詞和後來對郭大江博士能力的信任，就義無反顧地把重建正東街幼兒園的重任交到明德學生們的手裏。重建的工作，對明德工程來說艱辛而繁重，不少問題都不是一般常理或技術能够解決；為此梁教授只能馬不停蹄地親自四出奔走，而我則因為夫人同志[3]的住院和離世，在前期工程開展後，參與變得很少了。

正東街幼兒園是明德工程歷來最複雜和建設費最高的項目。重建最终得成正果并交付使用，完全有賴梁教授、郭博士、蒙兆禧建築師和陳成工程師四位關鍵人物無私的付出和不懈的努力，為此我必須代表所有明德工程的參與者向他们致以衷誠真摯的敬意：感謝梁教授對明德工程由始至終的支持和信任、感謝郭博士给學生們的卓越帶領和指導、感謝蒙建築師美觀而實用的設計、感謝陳工程師不顧安危地長駐工地和對質量要求的堅持！

楊澍人
1971年畢業生

[1] http://www.civil.hku.hk/mingde/

[2] http://www.operationconcern.org/demo12B/index.html

[3] 華人圈子一般尊稱對方妻子為夫人，共產社會泛呼志同道合者為同志；廣西壯族自治區環保局的副局長張英摘取特區與大陸兩地持色，戲稱內子為「夫人同志」。

Eqilogue

On 12 May 2008 a magnitude 8.0 earthquake struck Wenchuan in Sichuan Province, causing severe damage to an area of more than 100,000 square meters. A large number of charity groups emerged in Hong Kong to raise funds for disaster relief. Some of these groups were established organizations while others were formed spontaneously on an ad hoc basis. When relief efforts of all kinds were in full swing, I received an email from an engineer enquiring whether Project Mingde[1] had any plans for disaster relief and offering to take part in the relief work. This engineer was a graduate from the Department of Civil Engineering of The University of Hong Kong who had participated in Project Mingde activities during his university years. Although I was touched by his compassion and enthusiasm, I told him that we should wait and see for the time being. This was because both the central and local governments were fully occupied with relief work on site and the situation was both urgent and chaotic; given that Project Mingde did not have the capability for instant mobilization or relief, we should refrain from adding to the chaos and trouble for the government.

Not long afterwards, Dr. K.S. Louie who was working for the Lee Hysan Foundation at that time gave me a telephone call and said that an old colleague from Chinese University would like to meet me. When I went to the meeting it was none less than Professor Leung Ping Chung, the renowned orthopedics expert. Professor Leung and his Operation Concern[2] medical team went to the disaster site in Sichuan within two week of the earthquake: not only did they provide relief services, they also helped to secure the reopening and reuse of some of the collapsed medical facilities. As a result of our meeting, Professor Leung and I went to Dayi and Chongzhou, which were affected areas near Chengdu, to carry out an inspection. Our conclusion was that there was not a great deal that Project Mingde could do to help. Because of the outstanding performance of Operation Concern in medical education and assistance in the past 14 years, the Chongzhou government asked Professor Leung, who was also a delegate to the National People's Congress, to help rebuild some affected facilities that the government could not attend to at the time. The Zhengdong Jie Kindergarten was what the two of us selected in our subsequent inspections.

Professor Leung had little knowledge of Project Mingde at that time. However, on the basis of my recommendations and his trust in the ability of Dr. Guo Dajiang, he did not hesitate in entrusting the important task of rebuilding the kindergarten into the hands of the Project Mingde students. The rebuilding task was difficult and onerous for Project Mingde. Many of the problems could not be solved through the exercise of common sense or technical expertise. Professor Leung had to run around nonstop to iron out the issues. As for me, because of the hospitalization and subsequent passing-away of my comrade-wife[3], I had to reduce my participation after the initial phase of the project.

The Zhengdong Street Kindergarten was the most complex project among the many Project Mingde Projects and one involving the highest construction cost. Its successful completion and commissioning was entirely due to the selfless devotion and tireless dedication of four key people: Professor Leung, Dr. Guo, Architect Mr. Mung Siu-hei and Engineer Mr. Chan Shing. On behalf of all the participants of Project Mingde, I must pay tribute to them: I must sincerely thank Professor Leung for his support and trust in Project Mingde, Dr. Guo for his excellent guidance and leadership of the students, Mr. Mung for his artistic and practical design, and Mr. Chan for his commitment to quality and for stationing at the site with no regard for his personal comfort or safety!

Nicolas Yeung
1971 graduate

[1] http://www.civil.hku.hk/mingde/

[2] http://www.operationconcern.org/demo12B/index.html

[3] It is common In Chinese communities to refer to each other' s wife as "lady wife", and in communist communities to refer to people who share the same ideals and thoughts as "comrades". Combining the habits of the Hong Kong Special Administrative Region and the Mainland, Ms Zhang Ying (deputy director of Environmental Protection Bureau of Guangxi Autonomous Region) playfully referred to my wife as "comrade-wife".
Translated from Chinese by Zina Wong, 1972 graduate

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