PHILLIPPINES STUDY TOUR 2015



DIOCESE OF MALOLOS

HEAF AGA

<u>CONTENTS</u>

Forewords 1 History of ASHRAE Study Tours 2 Acknowledgements 3 Executive Summary 4 Introduction 5 Itinerary 6 Tour Experiences 7 Reflections 17 Gallery 20

FOREWORDS

This is the tenth year that the ASHRAE Student Branches in Hong Kong organized such a study tour, with the aim to promote student development, cultural exchange and mutual understanding. A brief history of the study tours in the past is shown below. Further information can be found on the website http://www.ashrae.org.hk/studytour/.

In this year (2015), seven university students in Hong Kong have participated in the study tour. The students have worked together to prepare for the study tour. They have conducted technical visits to the Philippine Department of Energy, the Philippine Green Building Council, the Net Lima (green office building in Bonifacio Global City), the Mind Museum (LEED Gold Museum), and the Philippine Arena (the largest indoor arena in the world). For cultural and academic exchanges, they have visited the Ayala Museum in Makati (on Philippine history), joined the historical/cultural tours to Bulacan, and visited the University of Santo Tomas (UST) and Mapúa Institute of Technology (MAPUA). They have also attended the students welcome party and the personal development seminar-workshop at the Asian Institute of Management (AIM) Conference Centre. Moreover, they have attended the banquet dinner of the ASHRAE Region XIII Chapters Regional Conference 2015. The study tour is very interesting and informative. It provided very good opportunities to understand the history, culture, recent building developments and local universities in Philippines.

This study tour has enabled our students to explore many interesting things in Philippines and exchange ideas with peer groups and professionals through the ASHRAE community. It is believed that the experience will broaden their horizons and provide good opportunities to develop themselves in voluntarily professional activities.

On behalf of the study tour participants, I would like to express sincere thanks to the ASHRAE Hong Kong Chapter, ASHRAE Philippines Chapter, the study tour sponsors and all related organizations for their kind support. I believe this study tour has created a significant impact to encourage exchanges and cooperation among the students. I hope that the spirit of the study tour will be continued and the participants will extend the findings and experience to benefit themselves, other students and our society.



Dr. Sam C. M. Hui Study Tour Advisor ASHRAE Hong Kong Chapter

HISTORY OF ASHRAE STUDY TOURS

2015 Philippines Study Tour

2014 Taiwan Study Tour

2013 Indonesia Study Tour

2012 Malaysia Study Tour

2011 Korea Study Tour

2010 Singapore Study Tour on Building Technology

2009 Thailand Study Tour on HVAC&R Technology

2008 Philippines Study Tour on HVAC&R Technology

2007 Taiwan Study Tour on Bldg. Energy and Envir. Tech. 2-8 Aug 2007 (Thu-Wed)

2006 Malaysia Study Tour on Building Technology 17-23 Aug 2015 (Mon-Sun)

10-17 Aug 2014 (Sun-Sun)

26 Aug-1 Sep 2013 (Mon-Sun)

9-15 Aug 2012 (Thu-Wed)

22-28 Aug 2011 (Mon-Sun)

23-29 Aug 2010 (Mon-Sun)

20-26 Aug 2009 (Thu-Wed)

25-31 Aug 2008 (Mon-Sun)

24-30 Aug 2006 (Thu-Wed)

ACKNOWLEDGEMENTS

Sincere thanks are expressed to the following organisations and persons.

Diamond Sponsor:

Ryowo (Holding) Co., Ltd. Telemax Environmental and Energy Management Limited

Gold Sponsor: Intelligent Technologies Ltd. Inspiraction Company Limited

ASHRAE Hong Kong Chapter:

Mr. Thomas Chan (Chapter President 2014-15) Dr. Sam C. M. Hui Dr. C. S. Wong (Chapter President 2015-16) Ms. Eagle Mo

Hsin Chong – K.N. Godfrey Yeh Education Fund for Joint Student Projects

ASHRAE Philippines Chapter:

Mr. Emmanuel Punsalan (CRC 2015 Chair) Mr. Shernan Esmenda (CRC 2015 Vice Chair & Chapter President 2014-15) Mr. David Farala (CRC 2015 Honorary Chair & Chapter President 2015-16) Mr. Jun Davantes (CRC 2015 Secretary) Mr. Jaime Jajay Cruz (CRC 2015 Attendance & Program Chair) Mr. Gio Mendoza (CRC 2015 Accommodation Chair) Mr. Francis Roberto Guevara (CRC 2015 Hospitality Chair) Mr. Danilo Duya (CRC 2015 Finance/Treasurer) Mr. Jojo Castro (CRC 2015 Reception & Registration Chair) Mr. Emelito Punsalan (CRC 2015 Publicity Chair) Mr. Cezar Punsalan (CRC 2015 Sponsorship Chair) Mr. Rico Mercado (CRC 2015 Technology) Mr. Cesar Luis Lim (CRC 2015 Technical Presentation) Dr. Manuel Belino (CRC 2015 Student Activities) Mr. Jim Bata (CRC 2015 Social) Mr. Joselito David (CRC 2015 Banquet) Mr. Charlie Borbe (CRC 2015 Transportation)

Student Branches of ASHRAE Philippines Chapter:

De La Salle University Student Branch Holy Angel University Student Branch Mapua Institute of Technology Student Branch MCL Mapua Student Branch PUP-Manila Student Branch UE Manila Student Branch UE Manila Student Branch University of Santo Tomas Student Branch

Philippine Department of Energy (DOE)

- Energy Efficiency Coordination Division (EECD)
- Laboratory and Appliance Testing Services (LATS)
- Planning Bureau
- Dir. Jesus T. Tamang (Director IV, Energy Policy and Planning Bureau)
- Ms. Lilian C. Fernandez (Division Chief, Energy Cooperation & Coordination Division)
- Mr. Christopher Edmundo V. Manalo (DOE)
- Mr. Isagani C. Soriano (Lighting and Appliance Testing Laboratory)

Philippine Green Building Council:

Mr. Christopher C. de la Cruz, Chief Executive Officer Ma. Anna G. Tungol, Executive Director Mr. Mario Lawrence C. Suelto, BERDE Program Coordinator

Asian Institute of Management (AIM) Management Team of Philippine Arena The Mind Museum The Net Lima Arch. Mr. Demi Abarquez (Manager for Construction and Technical Services, The Net Group)

EXECUTIVE SUMMARY

ASHRAE Study Tour is an attractive annual student acitvity. This year, eight students from the City University of Hong Kong (CityU) and the University of Hong Kong (HKU) taking part in this Philippines study tour from 17th August to 23th August 2015.

During this 7 days study tour, students' interests in HVAC&R technologies are enhanced by talks, seminars and visits. It was a precious chance for us to broaden our view and spread our culture among different student branches in Region XIII. During the ASHRAE Chapter regional Conference (CRC), we joined various excellent activities, such as technical seminars, personal development seminar workshop and cultural tours to Bulacan. The seminars focused on careers in HVAC, IAQ research, professional skills, MBTI and personality types. We had a chance to do a presentation practices in the workshop too. These activities taught us new knowledge and prepared us in our career. We joined the activites with students from different countries everyday in the CRC. Therefore, we formed valuable friendships with them.

In the trip, we also visited the Philippine Department of Energy, the Net Lima and Philippine Green Building Council (PHILGBC). We found that Philippine Government and their engineers put many efforts on environmental policy. They have a Green Building Rating System similar to LEED and BEAM+. It calls the Building for Ecologically Responsive Design Excellence (BERDE). Being green is a global trend in building industry. Visiting the offices, giving us a chance to broaden our horizon on environmental policy.

The supports from ASHRAE Hong Kong Chapter is essential when organizing a successful study tour. We would like to take this opportunity to thank ASHRAE Hong Kong Chapter for supporting students' activities and help us developing our knowledge in HVAC&R industries. Thanks for the support from Philippines student branches and their preparation of the excellent trip to experience the Philipines culture and visit the historical relics.

Thanks Dr. Sam Hui for the itinerary arrangement of the study tour and the guidance in Philippines. Thanks to all tour members for their valuable participantion and contribution in our memorable tour.



Ms Lai Wing Man, Lemon (CityU)

INTRODUCTION

In August 2015, the ASHRAE Region XIII Chapters Regional Conference was held in Manila, Philippines. This 7day study tour was supported by ASHRAE Hong Kong Chapter to allow the students in Hong Kong to attend the conference, also to carry out technical and academic visits and exchanges. Successful study tours have been organized since 2014.

This study tour was aimed to study the building and engineering technologies in Philippines, to develop knowledge and skills in advanced energy technology, building environmental design and creative thinking, promote international cooperation, cultural exchange and mutual understanding in Asia.

The study tour was held from 17 August 2015 to 23 August 2015. There were 7 ASHRAE student members from City University of Hong Kong and The University of Hong Kong involved in the tour. For the preparation work of the tour, students were responsible for preparing the design and printing of Tshirts, booklets and banner. They had also to arrange the itinerary in Manila and performance in the CRC banquet dinner. It was a good opportunity for students to recognize each other and perform their communication and organization skills through working as a team. After the tour, students are required to write a report and conduct a presentation to share what they had acquired, their experience and feeling of the study tour.

NPEN

ITINERARY

<u>17 August 2015 (Mon)</u> Hong Kong to Manila: 5J111 1040/1240

<u>18 August 2015 (Tue)</u>

Visit to Philippine Department of Energy Visit The Net Lima (green office building) Visit Philippine Green Building Council

19 August 2015 (Wed)

Visit The Mind Museum (LEED Gold Museum) Visit Ayala Museum (Philippines' history) Student Registration and Welcome Party for Students at Asian Institute of Management (AIM)

20 August 2015 (Thu)

Technical visit to Philippine Arena and historical/cultural tours in Bulacan

21 August 2015 (Fri)

Technical Seminar and Personal Development Seminar Workshop at AIM CRC banquet dinner

> 22 August 2015 (Sat) Visit to University of Santo Tomas Cultural exchange and sightseeing

<u>23 August 2015 (Sun)</u> Manila to Hong Kong: 5J118 1640/1840

TOUR EXPERIENCE

11

TRAFFIC MUST

H:::::III

TRACTICITY AND A REAL PROPERTY AND A REAL PROPERTY

THE VIELENCE VETTER .

IIII IIIIIIIIII



On the first day morning, we took the flight from hong Kong to Manila. We were so excited for the tour although we look tired in the photo. Most of us have not been to the Philippines before so it would be a very unexpected journay for us!

After settling down in the hotel, some of us went to a popular restaurant that is very close to our hotel. Located in the greenbelt, a new shopping area aimed to provide a green and comfortable experience for customers, Sentro 1771 provides indigenous Filipino Cuisine that we had never tried before and of course they were so delicious!





DEPARTMENT OF ENERGY (DOE)

The Department of Energy kindly present the general energy resources, oil industry, expand capacity and coverage of power supply of Philippines . The biggest challenge of power supply in Philiphinese are the power grid expand through out all the islands.

Moreover, Dir. Jesus T. Tamang, Ms. Lilian C. Fernandez, Mr. Christopher Edmundo V. Manalo and others officer from DoE are kindly show us the Research and Testing Laboratory Services inside the DoE. The Lighting and Appliance Testing Laboratory (LATL) have so many different equipment for measurement and testing. Here is one of those. This is one of the three equipment for lamp testing. One of them are for street lamp testing which haveover 10 meters long and about 5 meters width only in terms of equipment size.





GREEN BUILDING COUNCIL

Mr. Mario Lawrence Suelto, the officer of Green Building Council introduced the history of BERDE which is the BEAM in Philippines to us. He also explain in details about the startup of green building council in Philippines . The main different between the BERDE and LEED is the focus is different.

THE NET LIMA

Despite the amazing growth, the Global City remains a green heaven. Among the new and green projects is The Net Lima, a pilot project under the Philippine Green Building council's BERDE program. One of the special feature of Net Lima is the water condenser, which is connected to the VRF air-contioning system. The feature has decreased water usage to just tenth of previous consumption.



MIND MUSEUM

In the morning, we had visited the The Mind Museum located in Bonifacio Global City. The Mind Museum concept is uniquely Filipino. The exhibition takes off from a narrative that presents science in over 250 interactive exhibits through five interconnected stories. The exhibition spans nature in scale, from the smallest thing in nature to the largest and



everything in between: Atom, Earth, Life, Universe, and Technology. Each gallery gives detailed information on all their showcases and gives new meaning to the term "discovery"

Almost all the exhibits in The Mind Museum are originally designed by Filipino artists and fabricators who worked closely with scientists here and abroad to execute science principles or facts clearly and beautifully.



AYALA MUSEUM

In the afternoon, we visited the Ayala Museum, located at the heart of the Makati Central Business District, which is near the Greenbelt. Among the museum's highlights was its collection of archeological artifacts, notably the Gold of Ancestors: Pre-Colonial Treasures in the Philippines, which served as a testament to the Filipinos' rich ancestry and inherent craftsmanship. An impressive selection of trade ceramics from Southeast Asia and China from the Roberto T. Villanueva collection were also on display in the exhibition A Millennium of Contact, signifying the history of the country's flourishing economic relationship with its neighbors. Apart from them, Phillippine Textiles Gallery Changing Exhibitions, The Diorama Experience, Maritime Vessels, Changing Exhibitions were also inspiring exhibitions in Ayala Museum.



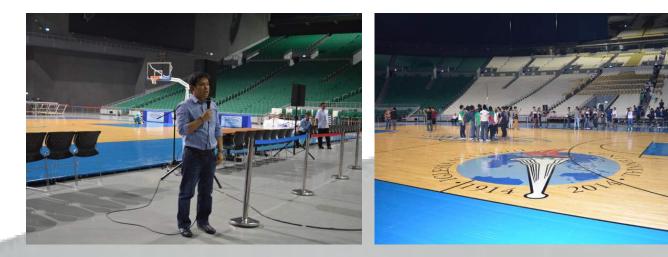
STUDENT REGISTRATION at AIM

At that night, the registration and Students' Acquaintance Party was holded in the Asian Institute of Management (AIM) Conference Center. Students from Philippine, Singapore, Thailand, Malaysia, Tai Wan, Indonisia registrated and had meals with us. Also, it is so please that the ASHRAE President 2015-2016 Mr. David Underwood came to give a speech to us. Moreover, the Philippine students provided ice-breaking games and performances to us.



THE PHILIPPINE ARENA

In day 4, we had a technical visit to Philippine Arena with the other student Chapter. Philippine Arena which is located at Ciudad de Victoria, Santa Maria, Bulacan. It is the largest domed performance arena in the world. The indoor arena was built on the total area of 74,000 square meters with 51,000 seats and its roof area is scaled to 35,000 square meters. The maximum capacity of the arena is 55,000people.



THE PHILIPPINE STADIUM

After visiting the Philippine Arena, we visited the Philippine Stadium.



HISTORY MUSEUM IN BULACAN

In the afternoon, we had our historical and cultural tours in Bulacan. We visited the Gat Blas F. OPLE, SENTRO NG KABATAAN, SINING AT KULTURA. It is an old museum which displayed a lot of historial things, such as paintings, old furniture and tools.





BARASOAIN CHURCH

Lastly, we have visited the Barasoain Church. An iconic church which became the birthplace of the Philippine Republic in 1899, the first of its kind in Asia. It also host the Malolos Congress which convened in Setember 1898 to frame its Constitution. It was restored to itsoriginal splendor for the country's centennial of Philippine Independence in 1988 which includes the Light and Sound Museum and Ecclesiastical Museum.

1 HE LIN CH L





TECHNICAL SEMINARS & WORKSHOP

Student Technical Seminar started on the morning of 21 August 2015 till evening. The first seminar was given by Dr. Sam Hui. He introduced the careers in HVAC&R and updates on ASHRAE. This helped us to equip ourselves for the challenge and prepared for the challenges in the engineering industry. The updated ASHRAE Publications were also introduced, which enabled us to read more references to enrich our knowledge.



The second seminar was given by Dr. Manuel C. Belino. He told us the importance of soft skills and hard skills in engineering industry. Therefore, he praised us for participating ASHRAE, as it already showed our intention to improve our skills.

After lunch, Mr. Rupesh lyengar started the afternoon session with his research in achieving temperature control coupled with an independent ventilation system to achieve humidity and air quality control. Ms Elaine Ilagan later conducted a psychological test for us. It helped us understand our characters, strength and weakness.

At the end of day, a workshop was held to test our understanding on the seminar. We were required to create a plan for an ASHRAE event. We needed to come up the mission, theme, materials needed, budget, event location and duration. Among groups from different countries, we were selected. Lemon went up on stage and presented our idea, holding a site visit in Hong Kong. The presentation was successful and our ideas were exchanged with students from other countries.





CRC BANQUET DINNER

CRC Banquet Dinner is always the most exciting event for all of the participants. After taking the group photos, leading the performance was the students from Thailand, who will be the host next year. We were impressed by their traditional ritual performance. It was full of energy and spiritual and we could not take our eyes off it. The next two were Singapore Chapter and HK chapter. The two performances were both related to music. The Singaporeans celebrated their nation's 50th birthday since independence with a song and we played the popular cup song to show our team spirit as Hong Kong citizens.



Following was Malaysia chapter and Indonesia Chapter. This year, Kuching Section of Malaysia Chapter was newly established and they brought along their traditional clothing and dancing. Their performance was a drama showing that the friendships in Region XIII will remain forever and we will never forget each other. Indonesian performance was also full with their traditional elements.

Finally was the Philippines chapter that never fails to impress us. The performance was a very special silhouette show with all the lights off and introducing the Philippines to all of us. It included the beautiful beaches, the volcanoes, the sports and their religions. It was very creative and interesting that we all gave them a big applause.



THE UNIVERSITY OF SANTO TOMAS

In the early morning, following some students of engineering department, we visited the most historic University of Santo Tomas of 400 years of history, which has the oldest extant university in Asia. It is also one of the world's largest Catholic universities in terms of the enrollment status.





Through their presentation and the school culture introduction video, UST has become a solid foundation with strong and distinctive features, and has greater impact on the academic field after nearly 400 years of construction and development. On that day, we visited 10 departments, and made some learning exchange with many students form different majors, art, engineering, education, architecture, nursing, musicology, accounting, business. We found that their academic content and the overall period of course are very different from us, for example, the academic year of medical major is ten years.

INTRAMUROS

The Intramuros (Spanish road) is very beautiful and the length of it is very long. The scenery of this road and the buildings are very beautiful too. Besides, the UST students told us a lot of interesting stories about Spain and the Philippines. Next to the Intramuros is a golf course, which is really worth to have a look.





REFLECTIONS

India In

IN THE R. P. S.

I I I I I I I I I

III. III

n na maa a

AND A CONTRACT OF A CONTRACT O

AR I



Mr. KO Cheung, Victor (HKU)

First of all, I would like to thank for ASHRAE Philippine Chapter for organizing the successful 18th Chapter Regional Conference. I am very proud to be one of the participants. We all benefited a lots from the seminar. Dr. Sam Hui introduced the career in HVAC & R industry and told us the background of ASHRAE. Professors from Philippine Chapter reminded us the importance of soft skills and hard skills in the industry. And Dr. Rupesh Iyengar provided the updated research to us. Meanwhile, CRC gave us the opportunity to communicate with students from all over the world. We learnt about the traditional dance from Malaysia, Taiwan and Indonesia. Students from universities in the Philippines even led us around in the city, from the modern Philippine Arena to antiquities and monuments. This study tour is definitely a meaningful and enjoyable one!

Ms. LO Wai Sin, Pang (HKU)

This is my third time going to an ASHARE study tour. I learnt and experienced many new things each time. One thing that impressed me most is the traffic jam. I thought the traffic problem in Hong Kong was already so serious. However, after this trip to Manila, I feel that we are all lucky that we do not have to stuck in the middle of the road for 3 to 5 hours! On the other hand, the scenary and the historical ruins, the Intramuros, were beautiful too. Unfortunately, it rained vey often so we did not get to see the most beautiful Manila this time. I am also very grateful for the Philippines Student Branch. The visit to UST allowed us to explore the history of Manila and build friendships with them. It was great that I met a lot of new friends. For the visit, What I saw form DOE and the NET building really boardened my horizons. I learnt that how differnent systems are used to suit their environment. I also like the exhibitions in the Ayala Museum which shows many delicate and precious gold utilities and accesories in ancient Philippines. Finally, I would like to thank everyoone who made this tour successful, especially Dr Sam Hui who planned all the events for us.



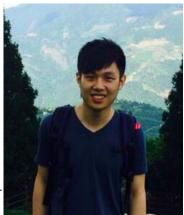


Ms. LO Hop Yi, Joyce (CityU)

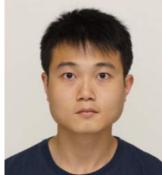
Hello everyone! This is the first time to participate in ASHRAE study tour and it is my first time to go to Philippines. The CRC program is very unforgettable for me. Students from different countries of region 13 are preforming in the CRC and this is an excellence change to make friend from different countries. The visit of local place with the local student in Philippines are remarkable. They are student from MIT and UST. We still keep contact in the moment. The students introduce us not only the attraction but also the culture background, the food culture and the faith issue of Philippines. We not only experience the culture of Philippine, but also the culture of Malaysia and Taiwan at the same trip. We met so many different people at the short seven days. The people are the most precious things inside our trip to Philippines.

Mr. NG Pik Ho, Eric (CityU)

The 7-day study tour was a wonderful experience. On the first 2 days, we had a chance to visit the Philippine Department of Energy and Green Building Council. In the visit, we had learnt more about the development and energy policy in Philippine. We were also introduced a local ranking system of green building and its difficulties of implementing the system for new building project. We also got a lot of chance to experience local culture and recognize local history by visiting Ayala museum, the Mind Museum and cultural tours to Bulacan. We also visited some old building to really experience part of history.



The most exciting thing in the tour is to make friend of student from different countries. Since we have different culture difference, we were excited to share our own experience and thought with other students. It was so interesting to discuss learning, culture, career even government policy with students having different background. During the tour, I really appreciate the students from UST and MIT for arranging some cultural visits for us. Overall, the tour is unforgettable for me.



Mr. CHAN TSZ Ki, DODO (City U)

The 2015 ASHRAE Philippines Study Tour should be one of the best experirnces in my life. I could not believe the one-week tour has finished! It was a fruitful and unforgettable experience for me and i would never forget every minute that I spent in the Philippine. During the one weeks' trip, i learnt a lot of new things. The visit of Philippine Department of energy, Philippine Green Building Council, Philippine Arena are the greatest visit that I had never expected.

On the other hand, I know more about the Philippine culture. It was amazing! During the technical seminar and personal development seminar-workshop, we had group discussion and I made many new friends from the other region XIII ASHRAE student Chapter.

Apart from technical visit and seminar, we went on many sightseeings. We had been to many new places and took many nice photos. We went to the Barasoain Church, Mind Museum, and many famous tourist attractions and historical museums. I think all of them were so interesting and I could not believe in my eyes that I could see those attractive exhibits or buildings. The most memorable thing is CRC banquet dinner. I enjoyed the performance of the "Cup Song". We had practiced the "Cup Song" for many times. All of the HK Chapter students would like to show the best one performance in the dinner. Luckly, we did it and people also enjoy it too. In future, I would like to go to the Philippine again and visit the ASHRAE Philippine Chapter student as I really miss them.

Mr. ZHANG Shu, Harry (HKU)

Before going to the Study Tour, there is little information and knowledge about this country for me, so that I though that it's a poor and backward country. But though the Internet and the study tour in the country's capital Manila, it's completely change my impression of Philippines, for that the country is full of power, and the development of very well, such as Philippine Arena is really very spectacular and beautiful.

Though this tour, I met a lot of very interesting and kindly people. Philippines people, whether they are working staff or students, are very nice, and all of them spared effort to introduce different aspects of Philippines, and some Philippines's unique culture. Most importantly, this tour provides me a chance to meet friends from different countries, and became good friends with them. This is really a very meaningful activity, I hope that it could be hold better and better in the future.



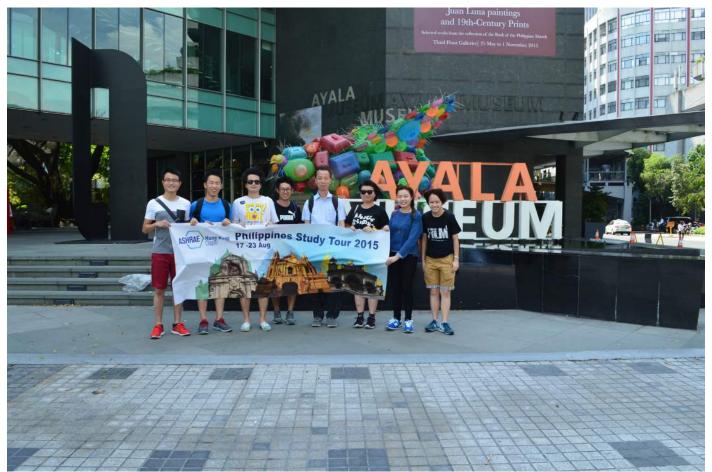




DEPARTMENT OF ENERGY (DOE)



THE NET LIMA



AYALA MUSEUM



STUDENT REGISTRATION, WITH THE ASHRAE PRESIDENT



PHILIPPINE ARENA, WITH ALL CHAPTERS



PHILLIPINE SPORTS STADIUM



BARASOAIN CHURCH, WITH ALL CHAPTERS



CRC BANQUET DINNER, WITH HK CHAPTER



UNIVERSITY OF SANTO TOMAS, WITH ASHRAE UST STUDENT BRANCH



INTRAMUROS, WITH STUDENTS FROM TAIWAN AND MALAYSIAN CHAPTERS

ASHRAE Hong Kong Chapter

Jointly organized by: ASHRAE CityU Student Branch ASHRAE HKU Student Branch ASHRAE HKUST Student Branch ASHRAE IVE Student Branch ASHRAE PolyU Student Branch

www.ASHRAE.org.hk