

Young Members Committee  
Continuing Professional Development Committee  
Hong Kong Institution of Engineers



# Overseas Delegation

## 2013 to Germany

Forge Vintages and Inventions with  
Faith and Heart

## **Background of YMC Overseas Delegation**

Since 1991, YMC has been organising Delegations to various parts of the world. A specific theme is chosen for each Delegation with the following objectives:

- To widen the vision and horizon of young engineers
- To appreciate latest engineering practices around the globe and assess the applicability of these practices in Hong Kong
- To promote Hong Kong and its engineering practices
- To enhance the relationship between HKIE and Mainland/ Overseas Institutions

These objectives can be achieved through the Delegation and a series of local seminars and visits held before and after the Delegation.

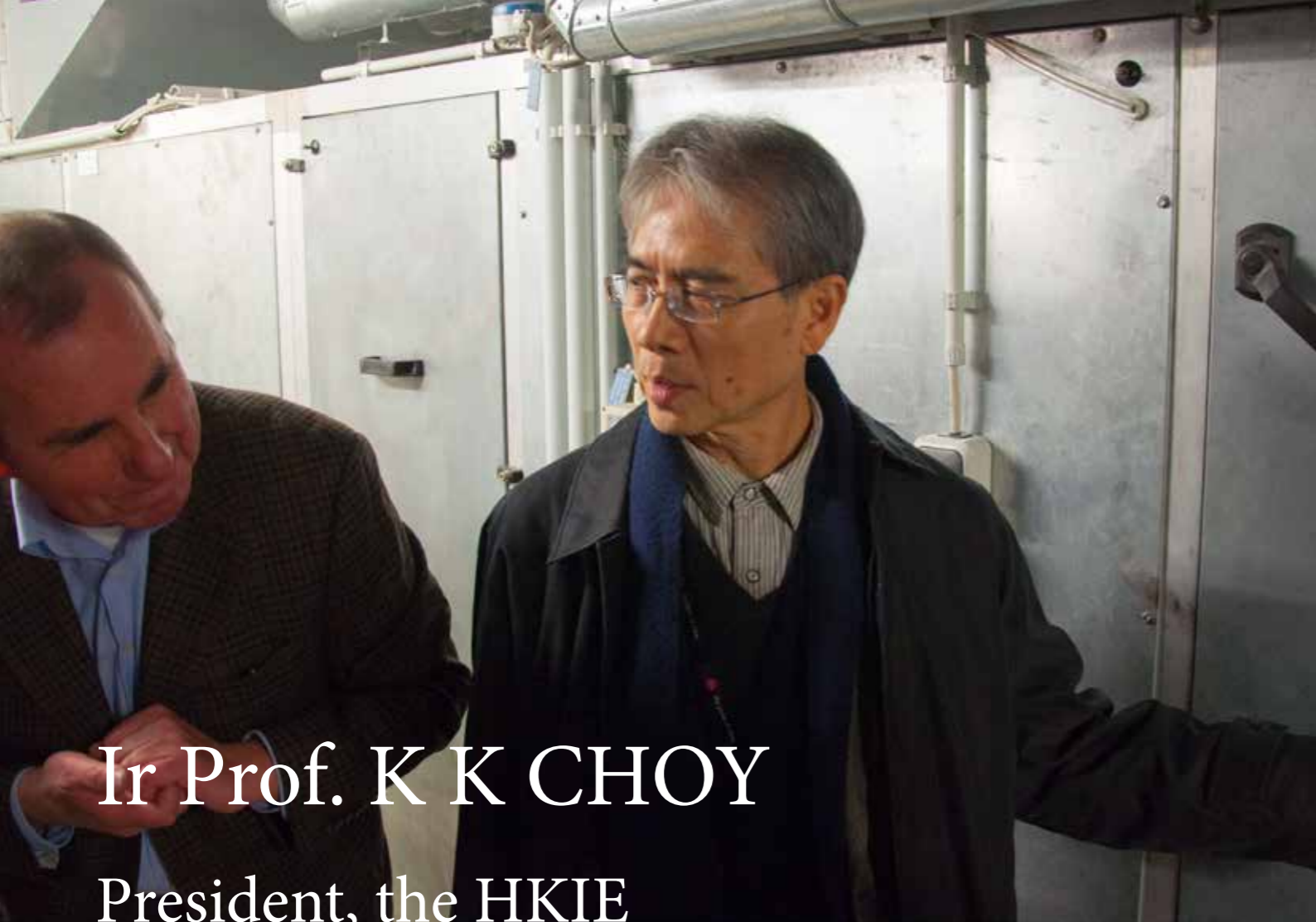
Young Members Committee,  
The Hong Kong Institution of Engineers,  
9/F Island Beverley,  
No. 1 Great George Street,  
Causeway Bay, Hong Kong.

Tel: (852) 2895 4446  
Fax: (852) 2577 7791  
Web: <http://ymc.hkie.org.hk>

June 2013                      All Rights Reserved

# Content

Foreword	2
Why Germany?	13
Area of Study	16
Overseas Events	21
Local Events	42
Insight	54
Conclusion	70
Profile of Advisors	72
Profile of Delegates	76
Messages from Delegates	80



**Ir Prof. K K CHOY**  
**President, the HKIE**

I have great pleasure to join the Overseas Delegation of our Young Members Committee to Germany from 3 to 9 March, 2013. I enjoyed much the 7-day visit. During the visit, our young members have demonstrated excellent team spirit, good communication skill and very effective organizing power.

I was particularly impressed that the background information of all organizations and places to be visited were well presented with full details by our young members, which had provided us very useful references and enabled fruitful exchanges during the discussions afterwards. We had visited two office

buildings, the Deutsche Bank Towers and the Commerzbank Tower, which demonstrated how engineering could help saving considerable amount of energy and reducing a high percentage of carbon emission. We did understand what green buildings were.

We also had the opportunities to witness the application of good quality control systems and advanced technological processes in the manufacture of high-performance products, while visiting the Leica Camera AG, Audi Production Plant and BMW AG. In the exchanges with the German Engineering Federation in Frankfurt, and the IMechE and ICE

in Munich, we shared their experiences of how engineers in Germany had applied green management and high technology for various projects.

I have to express my gratitude and appreciation to Ir Iman Lai, Ir Annie Chan and all young delegates for their success in the organization of this overseas visit, which has achieved valuable and fruitful results.

## **Ir F C CHAN** **Immediate Past President, the HKIE**



Congratulations to the success of YMC Overseas Delegation 2013 to Germany – A regular annual function which is successfully organized by YMC. The delegation gained not only an exposure about what Germany is doing but also the comparison of the achievements of Hong Kong with Germany. Again, it is my wholehearted admiration of the YMC's leadership, culture and group work. It is a good model for developing our future professional engineers.

The YMC delegation visit plan is objective oriented, covering precision technology, green features for building and automation in manufacturing and tax for electricity. I am sure that their visit to Leica Camera, Deutsche Bank, Audi, Stadtwaldhaus etc will enrich their knowledge. I do hope they can further disseminate their insights to other members in the HKIE. Furthermore, it is highly desirable if we have something identified and

transplanted, learned and developed to suit Hong Kong for action!

YMC is energetic and proactive in seeking opportunities to organize activities for their members and inspiring them to develop a successful path for their career as well as the engineering industry. I look forward to seeing the continuation of the overseas delegation.



**Ir Raymond K S CHAN, JP**  
Senior Vice President, the HKIE

Germany's achievements in science and technology have been significant, and Germany has been the home of some of the most prominent researchers in various scientific disciplines, notably physics, mathematics, chemistry and engineering. For most of the 20th century, Germany had more Nobel Prize winners in sciences than any other nations.

To align with the Theme of The HKIE this year "Engineer our Future with Innovation and Excellence" and this year's Young Members Committee Delegation Theme "Forge Vintages and Inventions with Faith and Heart", it is most opportune and inspiring for

the YMC to have chosen Germany as the destination for this year's Overseas Delegation. I am extremely impressed by the Young Members Committee's (YMC) efforts in putting together the March delegation to Frankfurt and Munich, including the thorough year-long preparatory and research work. I have had the privilege to join the full trip this year and have learnt a great deal on the trip, including the precision lens technology of Leica Camera AG, the most advanced green features of Deutsche Bank/ Commerzbank, the customer-focus and automated manufacturing processes of the Audi/

BMW Plants, the fascinating Stadtwaldhaus (tree house), as well as the environmental-friendly Olympiapark. The exchange with VDMA/IMEchE and ICE also enables the delegates to have better insight of engineering practice in Germany. I am sure the young delegates also enjoyed every minute of the trip and will be benefited from it in the years to come. I wish to record my special appreciation to Ir Annie Chan and Ir Iman Lai for their leadership to make the Delegation a great success. I also congratulate everyone in the team for their dedicated teamwork, enthusiasm and effort.

# Ir Victor C K CHEUNG

## Vice President, the HKIE



I would like to commend YMC for having organized yet another very successful Overseas Delegation in March 2013. I am most impressed by the concerted effort and enthusiasm of each team member in preparing for the trip. The itinerary was very well planned and detailed background research had been carried out on the various places to be visited before their departure. Every team member also shared various tasks to ensure participation by all. This arrangement enhanced the learning process and made the trip much more fruitful and meaningful. For many decades, Germany has been highly

regarded as a world leader in technology, engineering and innovation, with many famous brand names from high performance motor cars to premium quality consumer products. In recent years, the country has also made significant development in green technology – improving the energy efficiency of their buildings.

Through this trip, our young engineers had the opportunity to gain valuable insight on a wide spectrum of Germany's impressive hi-tec manufacturing processes and latest green building technologies. This trip has not only enriched their

engineering knowledge but also broadened their horizons on the social and cultural aspects. The valuable experience gained through the learning and sharing process of this Delegation will be beneficial to their professional career advancement.

I wish to congratulate Ir Annie CHAN and her team in accomplishing this successful mission for YMC.

# Ir C C CHAN

Vice President, the HKIE



I am indeed honoured to have been invited by the Young Members Committee to be an advisor to their Overseas Delegation 2013 to Germany.

Germany is well known for their technological advancement. Precision has more or less become part of their culture and life style. Therefore, it is most appropriate that the Delegation visited some famous camera and automobile manufacturers, so as to allow the delegates to learn for themselves first hand these aspects of the

engineering industry of Germany.

The Delegation had a very full and rewarding programme, and had the opportunity of visiting some infrastructures that put strong emphasis on green features. The importance of maintaining sustainable development in any engineering project was clearly demonstrated, and I am sure the delegates greatly benefited from these visits.

I wish to congratulate the Delegation under the leadership of Annie

and Iman for making this overseas visit such a success. The full team had put in so much effort in preparing and organizing for this visit, which in fact is a very good learning experience in itself. I wish all of them a bright future in their engineering career and as they develop to be our future leaders in the profession.

# Ir Dr. Otto L T POON,

## BBS, OBE

Past President, the HKIE



Germany is the engineering power house of Europe, enjoying leadership position in precision engineering, automobile, environmental protection, and green building technology.

It is heartening to see that in the year of Rio+20, YMC organized an overseas technical visit to Frankfurt and Munich to inspire young engineers to learn and to develop innovative ideas on manufacturing process, quality management, green building, and to promote the professional image of the HKIE and Hong Kong engineers.

From the intensive programme and meaningful exchanges with professionals in the industrial and commercial centers of Germany, it is evident that the Delegation had achieved its goals. I would, therefore, like to congratulate the Delegation, under the able leadership of Ir Iman Lai and Ir Annie Chan, for organizing this successful trip as well as being an ambassador for the HKIE in the heart of continental Europe.

# Ir Edmund K H LEUNG, SBS, OBE, JP Past President, the HKIE



Once again, I felt privileged and honoured to have been invited by YMC to be one of your delegation advisors.

I consider this year most special as from my background of a mechanical engineer there were many factories and buildings that I would have loved to visit personally.

I had always yearned to have the opportunity to visit world classed automobile and camera factories, and what would be better examples than Audi and BMW for cars and Leica for cameras? I really regretted that I had other commitments that prevented me from accompanying the delegation, and even up to the week before the visit, I almost made up my mind to forgo my other commitments to free me to join the delegation to avail

myself to this golden, and probably once in a lifetime, opportunity.

Therefore I am so pleased for the delegation that you have accomplished the visits of these renowned manufacturing industries, and also the landmark buildings, to study the technical rather than the scenic aspects. I am sure you would have learned a lot from actually seeing them in daily operation, and had the opportunity to shoot a question or two to the hosts to help you to understand any particular issues that you have always wanted to ask to gain a thorough understanding.

The experience you have gained by actually being at the sites far exceeds what you would have gathered from documents or websites, and they will

become most valuable when you next come across similar issues at your work. Germany and Hong Kong may be rather different in many aspects, but in terms of engineering solutions, they can become most useful as an excellent reference.

I must therefore congratulate and admire Delegation Chairman Ir Iman Lai, Delegation Manager Ir Annie Chan and the whole team for your success in organizing and attending this delegation, and I am sure you would have found the visit most enjoyable and rewarding. Please help to encourage future young members to continue to organize other overseas delegations so they can also benefit from such experience.

# Ir S T CHAN Chairman, the Continuing Professional Development Committee, the HKIE



To facilitate members to update their depth and breadth of knowledge and expertise, and to develop those personal qualities required to fulfill their roles in industry and in society is always the main role of the Continuing Professional Development Committee (CPDC). I see YMC overseas delegation fits all these requirements out the long list of YMC activities. That is why CPDC has no hesitation in providing financial support to this meaningful event every year.

The theme this year is "Forge Vintages and Inventions with Faith and Heart" to echo the theme "Engineer our Future with Innovation and Excellence" championed in this session by our President Ir Prof Choy Kin-kuen. The chosen destination is Munich and Frankfurt which are

global and green cities in Germany with "Driving the Next Generation", "Fitness for use" and "Development with Conservation" the three major study areas under the theme of the delegation 2013. Germany is always linked with engineering excellence with famous brands such as BMW, Benz, Leica etc. The delegation visit to Leica Camera AG and Audi/BMW Plant provided opportunities to get first hand information on how precision technology is advanced from lens making to quality inspection, and how nowadays automobile manufacturing processes are mostly automated with just-in-time delivery to make them so successful.

During the selection interview of the delegation team, I saw the eagerness of our young engineers to learn from the visit and broaden their horizon to

face future challenges in their engineering careers. The delegates come from a good mix of engineering disciplines and industries. No pain no gain. All the hard work in preparing for the local seminars/visits, liaising with overseas organizations, finding sponsorships etc had ended in a fruitful trip and a dedicated and coherent team.

From the intensive programme and vigorous exchange with counterparts in Germany, I am sure the Delegation has achieved its objectives, and the delegation report will be informative and insightful to our young engineers.

Lastly, I take this opportunity to congratulate YMC, in particular Ir Iman Lai, Ir Annie Chan and their team for their success in organizing this Delegation.

# Ir Gary C W KO

## Chairman, the Professional Assessment Committee, the HKIE



The Hong Kong legacy in education and technology application has geared many of us to search around the English speaking parts of globe when we move outbound. Yet from soccer to technology, few people can understate German influence in Europe if not the world. I am glad that the YMC is establishing the trend to look beyond the traditional zone of countries.

As one panel member to select delegates, I am delighted to note that most candidates have shown interests in Germany, which is a country mostly foreign to the young generation, by getting

familiarised with the culture and technological development of it. It is a testimony of passion and commitment, which is an attribute commonly found in many successful engineers. I must praise the selected delegates to possess such quality and envy their opportunities to polish their already learnt skills to plan and implement the Visit which is another success difficult to be followed by others.

One long cherished heritage of British electrical engineering in nurturing the young generation till the present day is the Faraday Lecture. May I share with all YMC delegates the quote from Michael

Faraday in his concluding remarks in the renowned lecture for children at the Royal Institution in 1860: "I ... express a wish that you may, in your generation, be fit to compare to a candle; that you may, like it, shine as lights to those about you; that, in all your actions, you may justify the beauty of the taper by making your deeds honourable and effectual in the discharge of your duty to your fellow-men."

Lastly, I would congratulate the YMC in particular Ir Annie Chan and her team to have organised this successful Germany Visit.

# Ir Iman W M LAI

## Delegation Chairman; Chairman, the Young Members Committee, the HKIE

In succession to the previous delegations, I am pleased to see the success of the YMC Overseas Delegation 2013 to Germany.

The Delegation is one of the most important events for YMC. It aims to widen the vision and horizon of young engineers, to appreciate the latest engineering practices around the globe and assess the applicability of these practices in Hong Kong, to promote Hong Kong and its engineering practices, and to enhance the relationship between HKIE and Overseas Institutions. These objectives could be achieved through the delegation itself, as well as series of local seminars and visits.

The delegation theme "Forge Vintages and Inventions with Faith and Heart" aligns with the HKIE theme this session "Engineer our Future with Innovation and Excellence". Throughout this delegation, I appreciate that our delegates could learn the precision technology of Leica Camera AG, green features of Deutsche Bank and Commerzbank, state-of-the-art technology of BMW and Audi production plants, and ways of preserving Stadtwaldhaus. It is hoped that the green and historical features could be studied for feasibility of application in Hong Kong where sustainable development is emphasized.

On behalf of this Delegation, I would like to take this opportunity to express our sincere thanks to the overseas and local

organizations. Without their support, our Delegation would not have been a success.

I would also like to thank the Continuing Professional Development Committee and sponsoring companies for their generous financial support.

It is our great honor to have received supports and advices by our advisors including Ir Prof K K CHOY, Ir F C CHAN, Ir Raymond K S CHAN, Ir Victor C K CHEUNG, Ir C C CHAN, Ir Dr. Otto L T POON, Ir Edmund K H LEUNG, Ir S T CHAN and Ir Gary C W KO. Special thanks to Ir Prof K K CHOY and Ir Raymond K S CHAN who joined our delegation to Germany sharing us their views.

Lastly, I must thank the hard work from all delegates, particularly the great efforts by the Delegation Manager, Ir Annie CHAN, and the two Deputy Delegation Managers, Mr Ambrose CHEN and Ms Candy FUNG, to make this Delegation a successful and memorable one.

To conclude, I would like to invite you all to join the YMC Overseas Delegation in the coming years. It is a unique and rewarding journey for you to explore personally!



# Ir Annie O Y CHAN

## Delegation Manager, Deputy Chairman, the Young Members Committee, the HKIE

Engineers' mission is to develop new technologies continuously in order to enhance the living standard. However, there is no doubt that adverse environmental impact will be produced under the high speed development era. How can we strike a balance between development and environment impact?

With the theme "Forge Vintages and Inventions with Faith and Heart", our study was focused on the development of engineering in Germany – from traditional manufactures to precision technologies; control of air and noise pollution on transportation field; and latest technologies on green development.

This delegation could not be made possible without the generous financial assistance provided by the Continuing Professional Development Committee and sponsoring companies. On behalf of the Delegation team, I would like to express our sincere thanks to all of them.

Besides, many thanks are given to the overseas organisations for hosting us and giving us an insight into their pollution control, precision and green building technologies and practices being implemented in Germany. Particular thanks are expressed to German Engineering Federation (VDMA), Institution of Civil Engineers (German Branch) and Institution of Mechanical Engineers (German Branch).

I would also like to express our sincere gratitude to our advisors, including

Ir Prof. K K CHOY, Ir F C CHAN, Ir Raymond K S CHAN, Ir Victor C K CHEUNG, Ir C C CHAN, Ir Dr. Otto L T POON, Ir Edmund K H LEUNG, Ir S T CHAN and Ir Gary C W KO. The advisors had given considerable supports in conducting interview, attending meeting in planning stage and joining our trip to Germany. Their guidance during this process was valuable to this trip as well as our delegates.

Last but not least, I would like to express my thanks to all delegates, especially the delegation Chairman Ir Iman LAI and the two deputy delegation manager Mr. Ambrose CHEN and Ms. Candy FUNG, for their contribution and great efforts to make this delegation a memorable and successful one. It is my honor to be a part of the team.



Germany has always been synonymous with engineering. Germany and its scientific literature and engineering development from the early 19th century through the beginning of World War II were very important for the development of science throughout the world. Germany has been the home of many famous inventors and engineers, such as Johannes Gutenberg, who is credited with the invention of movable type printing in Europe; Hans Geiger, the creator of the Geiger counter; and Konrad Zuse, who built the first computer. German inventors, engineers and industrialists such as Zeppelin, Daimler, Diesel, Otto, Wankel, Von Braun and Benz helped shape modern automotive and air transportation technology. All these inventions enhance our living standard.

Young members can appreciate how the German engineers treat their profession in a serious attitude which let Germany maintain a leading role in engineering industry. Any other secret reasons that she holds a leading role for a long history?

43

LH 797  
INZ 4000

23:25

TD 7620  
法蘭克福

預售

TO BREAK THE GLASS, YOU MUST FIRST MASTER THEM.

WORLD

# Why Germany?

## Composition of Delegates

Similar to previous YMC overseas delegations, overwhelming responses had been received during the recruitment of delegates in October 2012. In November, sixteen delegates were chosen from a group of elite young engineers by advisors through interviews. These delegates came from various engineering disciplines, including Building Services, Civil, Environmental, Mechanical and Structural engineering. They work in different sectors of engineering professions, ranging from government departments to public sectors, consultants and contractors.

Frankfurt am Main Flughafen Regionalbahn

## Theme

Following the success of the Dubai Delegation 2009, the Denmark Delegation 2010, the UK Delegation 2011 and the Canada Delegation 2012, YMC has organized another Delegation in this session, and the chosen destinations were Munich and Frankfurt, Germany.

With the theme of “Forge Vintages and Inventions with Faith and Heart”, delegates had an opportunity to explore the latest developments in pollution control technologies on transportation, precision technologies on manufacturing industry and green building design. The delegates also studied how German engineers explore innovative ideas and apply to engineering field to improve citizen’s quality of life in a traditional city.

## Objective

Germany is an engineering leading country in the world for a long history. There must be a reason behind. German engineers’ serious attitude and straight discipline are essential elements for their success. In this delegation, we would like to appreciate German engineers’ working attitude. Besides, we aim to inspire young engineers to develop innovative ideas. We also arranged various exchanges with different engineer societies in order to encourage young engineers to extend their networks and increase the horizons while promoting the professional image of the HKIE and Hong Kong engineers at the same time. In addition, the delegation can enrich the delegates on technological

development and applications for pollution control for transportation, precision technology and green building design. This will be achieved through the local seminars and visits related to the delegation theme. Under this backdrop, the delegates are divided into three study groups, with each focused on studying one chosen area:

1. Driving the Next Generation: Air and noise pollution control measures for transportation;
2. Fitness for use: Precision technology in manufacturing processes; and
3. Development with Conservation: sustainability features in green buildings’ design and the development in an urban area.

# Area of Study

The long history of Engineering in Germany has made the country a leader in heavy industry, precision engineering and green technologies.

Aiming to study and appreciate the practices in Germany, and to share what we have learnt during the seven day trip, and ultimately furnish and suggest a way forward for improving industrial practices in Hong Kong, the delegation team has conducted a series of study.

By studying the strength of Germany and reviewing the situation in Hong Kong, the team outlined some major study area, which will be introduced in this chapter.

The delegates are divided into three study groups, with each group focuses on each of the following:-

1. Driving the Next Generation: Environmental control measures for transportation;
2. Fitness for use: Precision technology in manufacturing processes; and
3. Development with Conservation: sustainability features in green buildings' design and the development in an urban area.

# Driving the Next Generation

Germany has long been regarded as the nation of automobiles. Name all famous automobile manufacturers on the world, most of them are established in Germany. Why can German make such impressive vehicles? Are they talented to manufacture better automobiles than other countries do? Besides automobile industries, are German also outstood in other aspects? Those were the questions that hovering in our minds before the delegation.

With the theme "Driving the Next Generation", the study team focused on the secrets behind the success of the vehicle industries in Germany. Although vehicle manufacturing is not a major business in Hong Kong, Hong Kong still remains a leader in providing engineering consultation, design solution and manufacturing ideas for the Asia-pacific. Therefore, it is important for the delegates to explore relevant knowledge and the essence of German manufacturing through this Delegation, and to apply them to Hong Kong for the improvement of local industries.



# Made in Germany

## Fitness for Use

The term "Made in Germany" was originated from the protectionism of British in 1887. Later the so-called "Merchandised Label" was associated with product reliability, quality and even perfection. It is not strange to find a German product with high reliability and good quality. But more importantly, the high standards of design have made German product a leader in the global market. Most products from Germany are found to be user friendly, which make the word "Made in Germany" a symbol of high quality, high reliability and high standard of ergonomics across the globe. The delegation team is interested in studying the rationale behind such quality products. Through desktop study, the team understands that the cultural difference does play an important part, for people in Germany think it is worthwhile to pay more in order to enjoy high quality products, therefore the delegation team would experience the culture of Germany that leads to the outstanding performance.

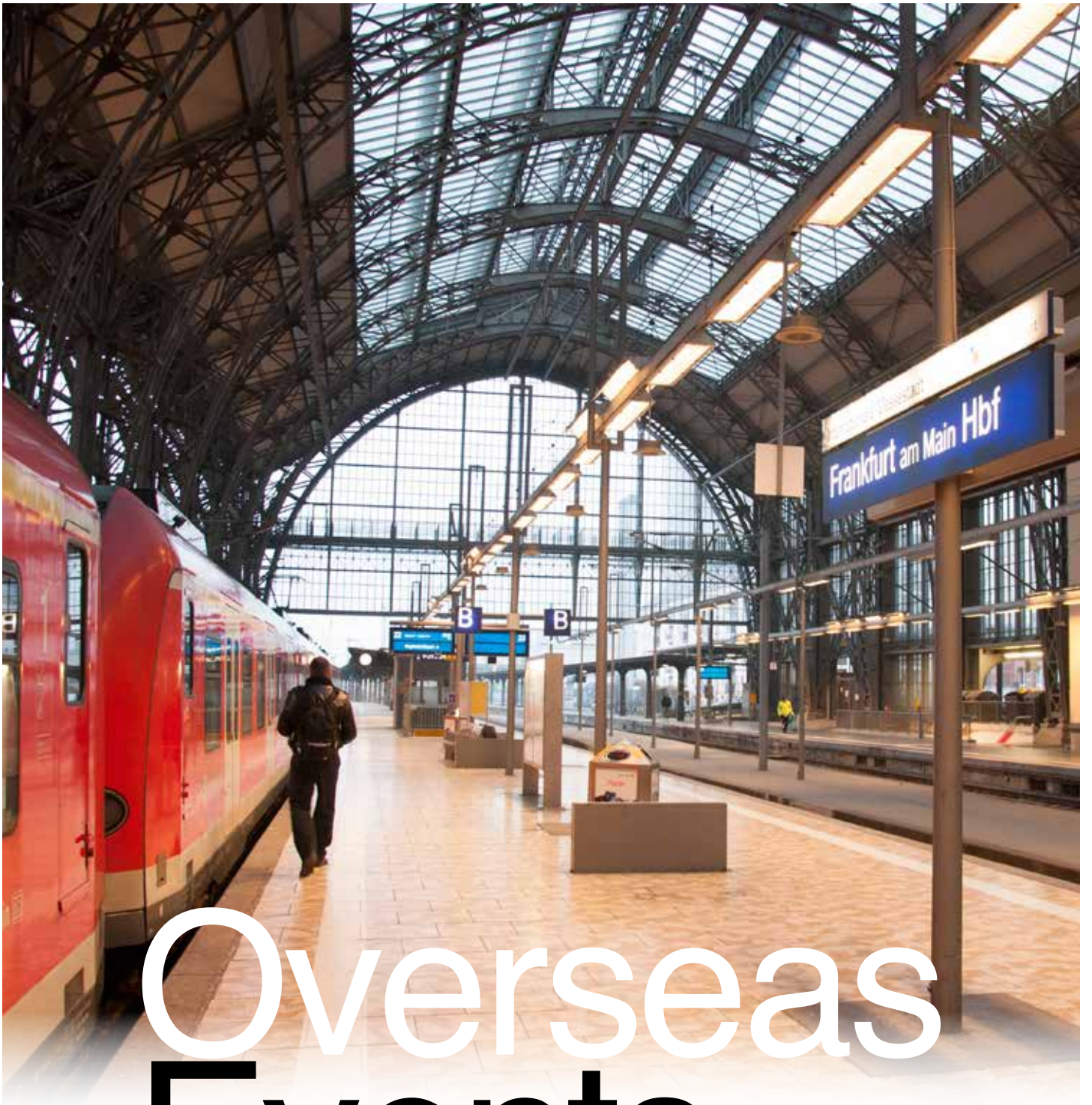
# Development with Conservation

To adapt the rapid change of today's world, we would have to consume more and more energy and materials. However, conservation of resources as well as preservation of human history and culture had become a hot topic as we develop.

Germany, as well as other European cities, possesses a long history, long enough to have a vast amount of historic buildings to preserve. Building such as Schloss Neuschwanstein (New Swan Castle) remarks the bright history of Bavarian Empire. Such historic heritage must be preserved. Although Hong Kong has a much shorter history, there are many buildings that deserve preservation and protection, these includes the King Yin Lei, which remarks the rise of Chinese in a British colony, as well as the old Kwong Wah Hospital which represents the very remarkable Sino-Angelo culture through Architecture. Moreover, in 2006 the Government had initiated a re-development on East Kowloon, called "Energizing Kowloon East", which aims to re-develop Kowloon Bay and Kwun Tong District to a more pleasant place for citizens as well as to preserve local art and

culture. It is therefore, worthwhile for the delegation team to study in depth the heritage preservation in Germany to see if such policies, techniques and concepts can be applied to Hong Kong to enhance our culture and heritage preservation.

Moreover, green technologies applications are also a hot topic in nowadays world. The Deutsche Bank headquarters were the first high-rise building to be given a platinum certification in Leadership in Energy and Environmental Design (LEED), other buildings such as Commerzbank Tower, the Stadwaldhaus (Tree House) also possess green concepts and technologies which surely we can learn from and benefit the buildings of Hong Kong. Recently commissioned Zero Carbon Building (ZCB) in Hong Kong is a showcase of application of Green Technologies in Hong Kong, By studying the green buildings of Hong Kong and Germany, the team hope to draw a comparison between the green buildings of the two places to make a way forward in our future developments.



# Overseas Events

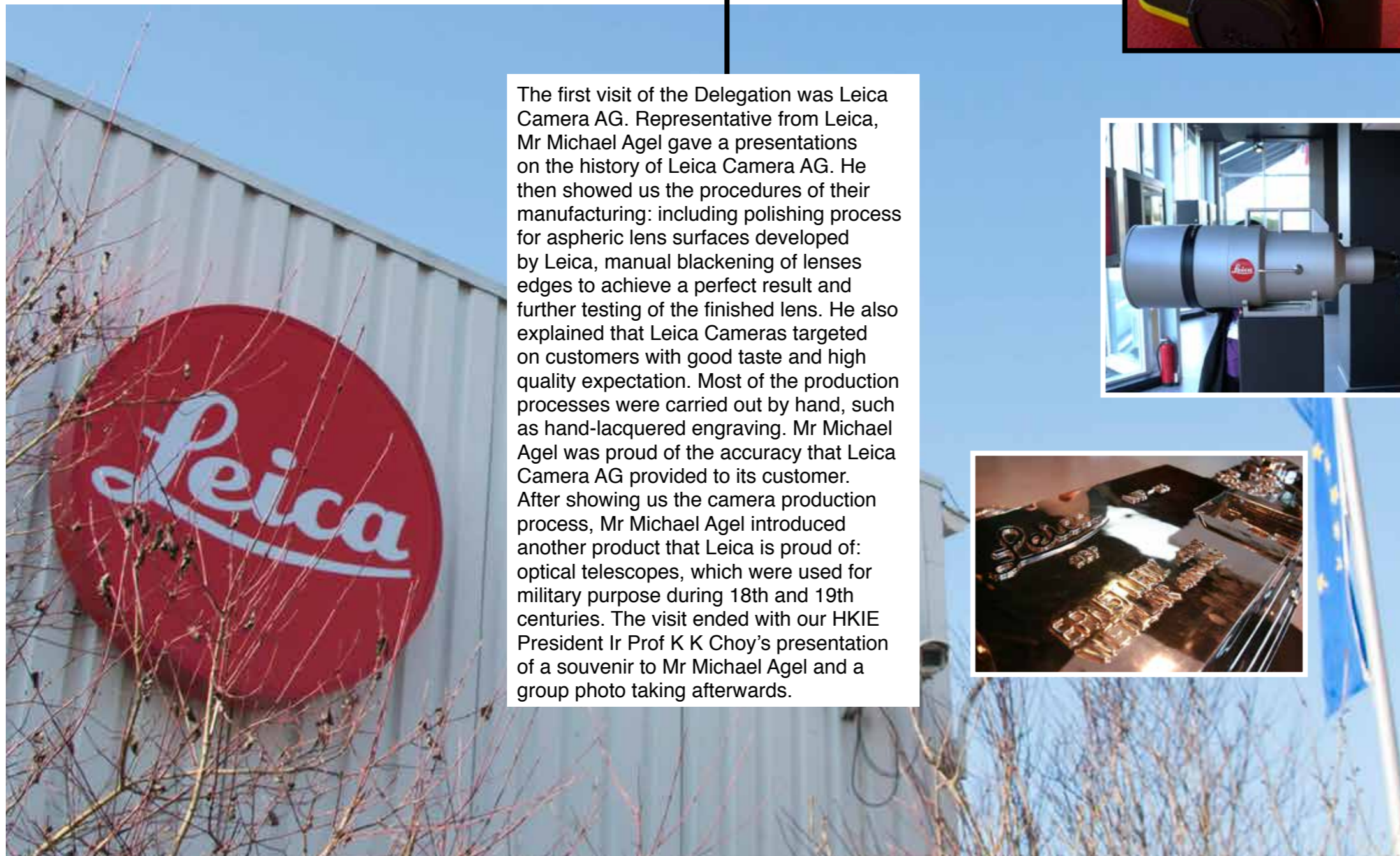


4 MARCH  
am

# MY POINT OF VIEW

## LEICA CAMERA AG

The first visit of the Delegation was Leica Camera AG. Representative from Leica, Mr Michael Agel gave a presentations on the history of Leica Camera AG. He then showed us the procedures of their manufacturing: including polishing process for aspheric lens surfaces developed by Leica, manual blackening of lenses edges to achieve a perfect result and further testing of the finished lens. He also explained that Leica Cameras targeted on customers with good taste and high quality expectation. Most of the production processes were carried out by hand, such as hand-lacquered engraving. Mr Michael Agel was proud of the accuracy that Leica Camera AG provided to its customer. After showing us the camera production process, Mr Michael Agel introduced another product that Leica is proud of: optical telescopes, which were used for military purpose during 18th and 19th centuries. The visit ended with our HKIE President Ir Prof K K Choy's presentation of a souvenir to Mr Michael Agel and a group photo taking afterwards.

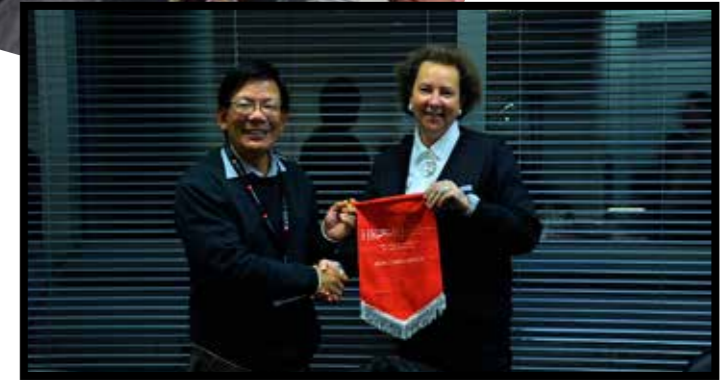


4 MARCH pm



# FRANKFURT AIRPORT

The delegates immediately headed to Frankfurt airport, which was well-known and recognized as the central gateway of Europe and serving as the headquarters of Europe's largest airline, Lufthansa AG. The tour bus took the delegates around the whole airport including some restricted areas, such as aprons. The whole tour gave us the opportunity to closely observe the airplanes and airport facilities. We learnt that the airport had launched many green policies to minimize the air and noise pollutions. Those policies included reducing the parking and admission fee from the airline to the aircrafts powered by environmental friendly



directly on the existing long-distance ICE (Inter City Express) station. The building is sitting right next to the airport and was designed to serve as the small business district near airport

# ARRIVED. MEET. DEPART.

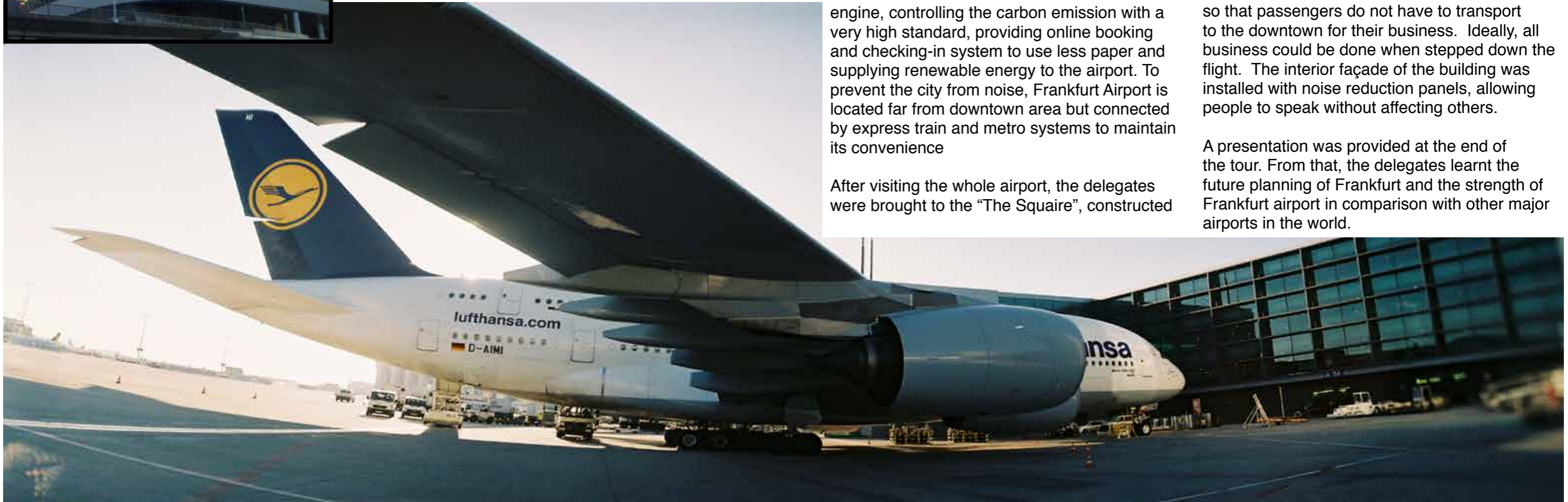


engine, controlling the carbon emission with a very high standard, providing online booking and checking-in system to use less paper and supplying renewable energy to the airport. To prevent the city from noise, Frankfurt Airport is located far from downtown area but connected by express train and metro systems to maintain its convenience

so that passengers do not have to transport to the downtown for their business. Ideally, all business could be done when stepped down the flight. The interior façade of the building was installed with noise reduction panels, allowing people to speak without affecting others.

After visiting the whole airport, the delegates were brought to the "The Squire", constructed

A presentation was provided at the end of the tour. From that, the delegates learnt the future planning of Frankfurt and the strength of Frankfurt airport in comparison with other major airports in the world.



5 MARCH

am

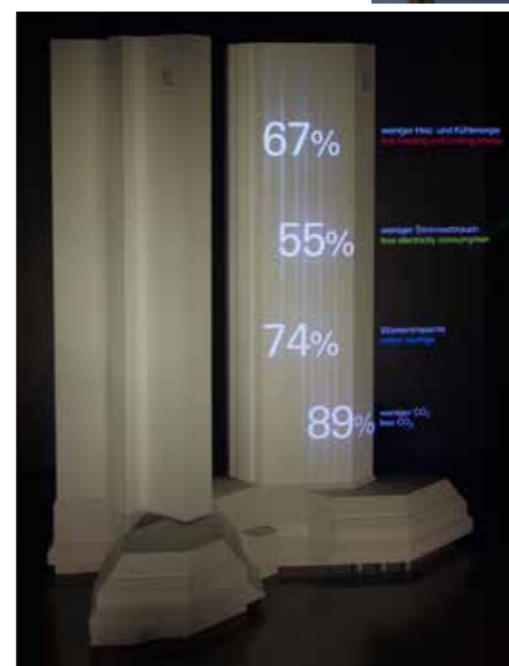
# DEUTSCHE BANK

The second-day of the delegation started with visiting the headquarters of the most famous bank in Europe, Deutsche Bank (DB). The green technologies that they applied in their renovation of the whole headquarter building attracted us here. During the first hour of presentation, Ms. Corinna Fernando, vice president of communication department, introduced the history of the Deutsche Bank Headquarters; the architectural features of the building and reasons why they initiated the

opening windows improved the energy balance further. The goal was to certify the building as a green building according to American standard LEED certification with the highest platinum for existing buildings, and the German seal of approval DGNB.

After the presentation, all the delegates were guided to the office and pantry. The demonstration of automatic window system and lighting system really showed that Deutsche Bank could achieve what they have set up in the first place.

renovation. The delegates have learnt the improvement of the fire protection systems as well as the replacement of the entire climate, water and lighting technology. All these have contributed to at least 50 percent reduction in energy consumption and CO<sub>2</sub> emission. A re-glazing with

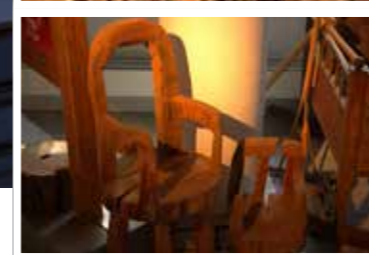
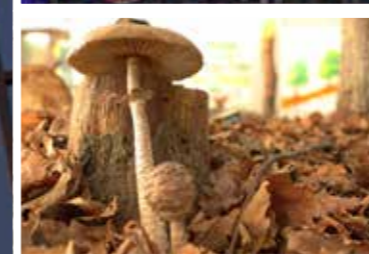


# PASSION TO PERFORM

# STADT WAL HAUS

After visiting the Deutsche Bank, the delegates were taken to the largest downtown forest in Frankfurt called Stadtwaldhaus. The whole funding and financial support of the forest are from the state government of Frankfurt. All the plants and animals are taken very good care by the forest officers. The delegates were given a brief introduction to familiarize the whole idea of protecting such big green area and the difficulties they overcame

in these years protection. After the presentation, delegates were shown how the forest could educate the younger generation in Germany. Delegates were also taught to distinguish the species of different mushrooms and insects that could clean organic waste. We even saw the wild animals in the forest that normally could not be seen in a developed city like Frankfurt. The harmony of the whole forest could be achieved with the help of human beings.



5 MARCH pm

# EXCHANGE WITH THE GERMAN ENGINEERING FEDERATION (VDMA)



After the morning visit, we had a chance to hold a technical exchange with The German Engineering Federation at the Head Office Frankfurt (VDMA). Three speakers agreed to attend the exchange: Mr. Oliver Wack, Area Manager East and South Asia within VDMA Foreign Trade Department; Mr. Alexandra von Kuensberg, Head of Forum Building Technology within VDMA; and Mr. Matthias Zelinger, Secretary General of EU Turbines Association.



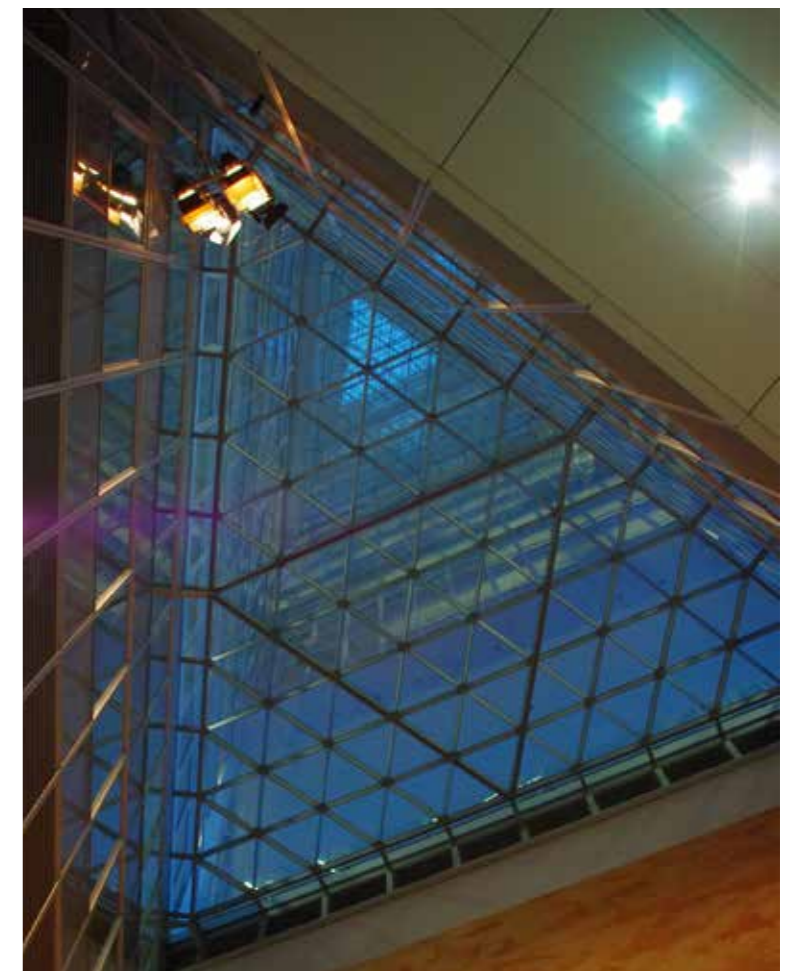
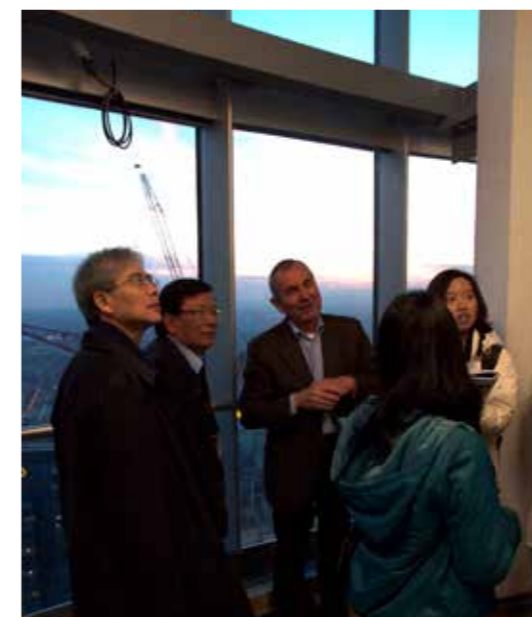
First of all, President of HKIE, Ir Prof. K K Choy and delegation manager Ir Annie Chan introduced HKIE and HKIE-YMC respectively. Then Mr Oliver Wack introduced VDMA and Dr. Alexandra von Künsberg gave the delegates a presentation regarding the residential building energy efficiency in Germany and the advanced technologies that they are applying and planning to apply. After that, Mr Matthias Zelinger gave a presentation about Emission and Emission Standards in Germany. The delegates then introduced green technologies which have been recently carried out in Hong Kong, including different regulations, codes published these years and an model example: Zero Carbon Building. During the open discussion, three speakers from VDMA and the delegates exchanged many great ideas and insights regarding to the green technologies and emission control. The whole technical exchange ended successfully by exchanging the souvenirs with each other.



The last visit of delegation in Frankfurt was the Commerzbank Tower which was Europe's first ecological skyscraper. It is fifty-three storeys high with a rounded equilateral triangular plan, comprising three "petals", the office floors and a "stem" formed by a full-height central atrium. Four-storey gardens are set at different levels on each of the three sides of the tower, forming a spiral of gardens around the building. Mr Peter Muschelknautz, the former head of facility management of Commerzbank Tower, gave us a tour of the whole building.

demonstrate the most valuable element that the bank is proud of, the natural ventilation. The environment brings fresh air into the atrium, connecting with the sky-gardens. The inner perimeter of the V-shaped plan of offices is ventilated towards the atrium and sky garden, while the outer perimeter is ventilated through a double skin façade. In fact, the double skin façade is the key to mediate the temperature between the interior and exterior of the building. It is made up of a single-glazed glass-layer located 15cm in front of the unlocked windows in the inner skin of the façade. The outer glass layer dampens the pressure fluctuations created by wind.

The tour started with the top roof view of sunset. After experiencing the height of the building and the splendid view of downtown Frankfurt, the delegates were led to the electric and mechanical room to observe the whole building service equipment system of the Commerzbank tower. After that, Mr Peter Muschelknautz took us to the sky garden to



6 MARCH

pm

# AUDI PRODUCTION PLANT



Photo source: <http://www.quattroworld>.



Photo source: <http://www.audi-mediaservices.com>



The first visit in Munich was the Audi Production Plant Tour. Delegates were able to see the final assembly stage of automobiles by walking along the assembly line, observing the tasks done by the mechanics, and listening to the tour guide's explanation.

During the final assembly stage, the customer-specific body is bolted to the drive train, consisting of the engine, gearbox and chassis: this is referred as the "marriage". The accessories were also installed in this stage. As the car will be further tested in Hungary before the delivery, the staff must ensure the vehicles work.

# ADVANCEMENT THROUGH TECHNOLOGY

7 MARCH

am

# SCHLOSS NEUSCHWANSTEIN



Neuschwanstein Castle (German: Schloss Neuschwanstein) is a 19th-century Romanesque Revival palace located on a hill above the village of Hohenschwangau near Füssen in southwest Bavaria, Germany. Although it was remote from the big city like Munich, it was still one of the popular scenic spots in Germany. The palace was commissioned by Ludwig II of Bavaria as a retreat and as homage to Richard Wagner.



The Castle was constructed by using the cranes which were driven by steam engines. The Throne Room was incorporated by means of a steel construction. One of the special features of Schloss Neuschwanstein is the large window panes. Windows of this size were still unusual even in Ludwig II's day.

Modern engineering systems were everywhere in the castle. The rooms of the Palas, the royal residence, were fitted with hot air central heating. Running water was available on every floor and the kitchen had both hot and cold water. There was also an automatic flushing system in toilets, a battery-powered bell system for the king to summon his servants and telephones on the 3/F and 4/F. Meals did not have to be laboriously carried upstairs but delivered in a lift



7 MARCH

pm

# OLYMPIAPARK

Olympiapark is one of the landmarks in Munich. It is now turned into a municipal park for recreation and leisure. Before the tour, the tour guide first of all showed us the video about the history of the 1972 Munich Olympic Games such as explaining how Munich was elected to be the host of the Olympic Games and the preparation works involved. Then he showed us the park's landscape model. Delegates were able to understand the design and planning works of the Park. Afterwards, the tour guide guided us to walk around the park, introduced and explained the planning works, design green features and the current usage of each building.

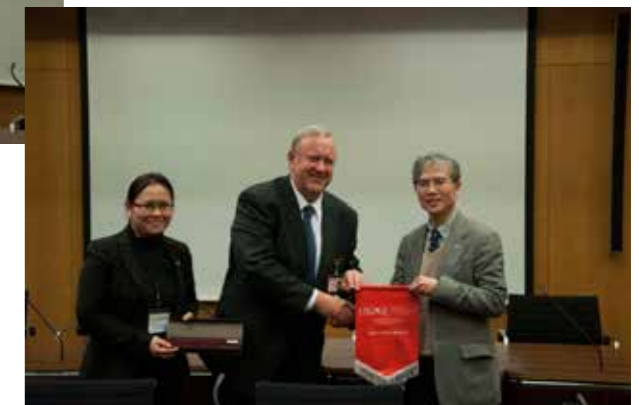


## EXCHANGE WITH IMechE AND ICE



The delegates went to the European Patent Office (EPO) for an exchange with ICE (Institution of Civil Engineers) and IMechE (Institution of Mechanical Engineers, German Branch). The main focus of the presentations was on the environmental measures in Germany. Representatives from local engineering firms such as TÜV and MAN have delivered the presentations of green measures on the machineries whilst ICE, IMechE and EPO gave the delegates a short introduction of their works in Germany. Our delegates have also shared the fire engineering system in the Hong Kong International Airport. The exchange was

ended in a local traditional restaurant. This exchange enabled our delegates a better understanding on the green measures and the business of different engineering firms in Germany.

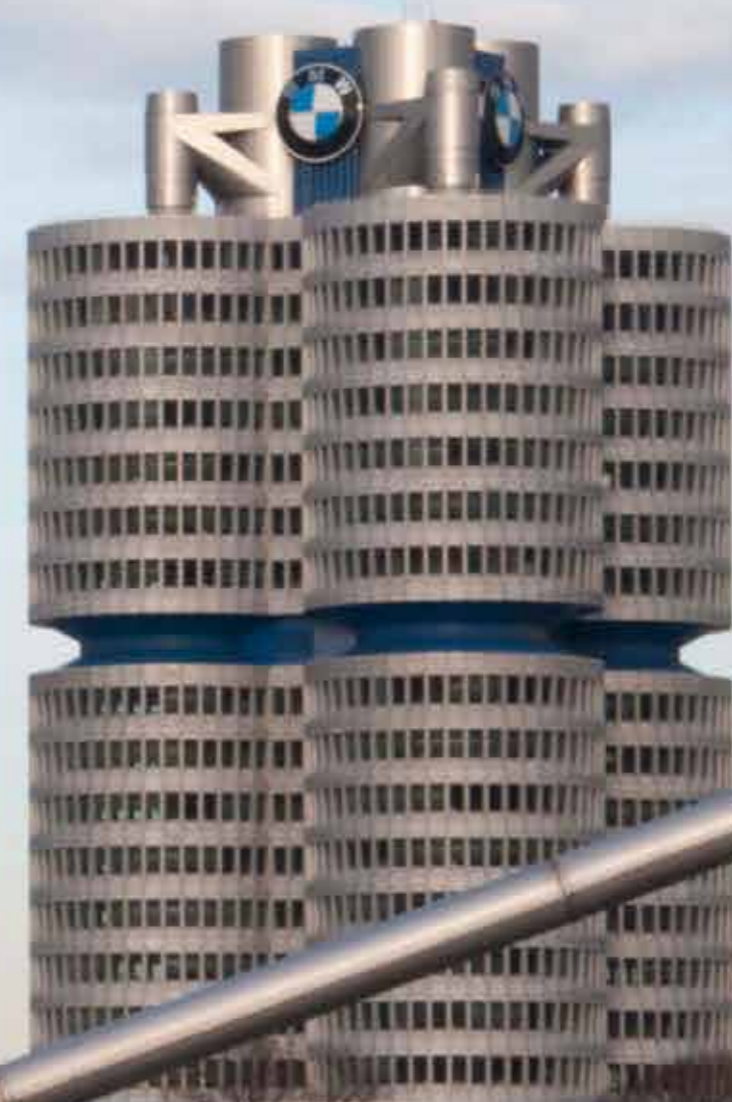


8 MARCH

am



# BMW PLANT AND WELT



The delegates visited the production plant of BMW. Starting from the Press Shop, the material used was high-grade, fully galvanized sheet steel, which was more flexible, stronger and lighter than before. The plates were pressed in different thickness and dimensions depending on the body section. The blank steel metal plates were cut out of huge coils weighing several tons before transferring to the Press Shop.

Afterwards, the completed metal parts were transferred to Body Shop. The high-precision industrial robots joined the metal components together to form the body-in-white. In the process, different joining methods were used such as spotwelding, soldering, screwing and bonding as well as with the new laser welding.

Move on to the Paint shop, the most important

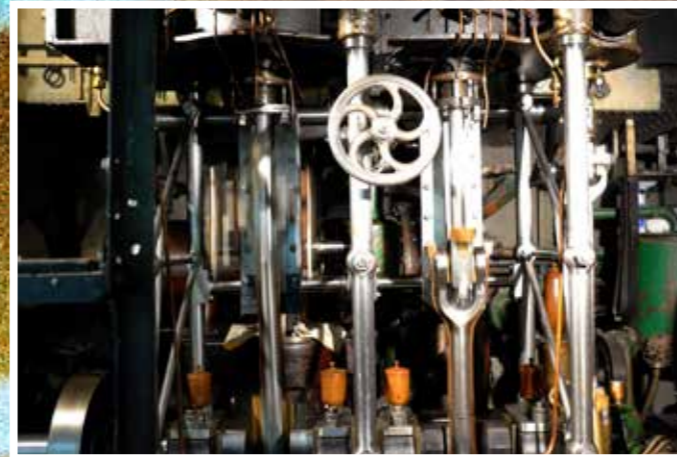
task was to clean the chassis by zinc phosphating. Using the advanced rotational dip procedures (RoDIP), the chassis was completely dipped into a bath of environmentally friendly water-based cathodic dip coating (CDC) paint. To achieve a very smooth surface, robots then electrostatically sprayed on the water-based filler coat using high-speed rotation sprayers. Requested by the customer, the chassis finally received the actual colour and followed by a layer of clear paint which gave a final protection and gloss. Finally, experienced, well-trained associates then complete the painted body shells to produce premium cars tailored to each individual customer in Assembly.

# THE ULTIMATE DRIVING MACHINE

8 MARCH

pm

# DEUTSCHES MUSEUM



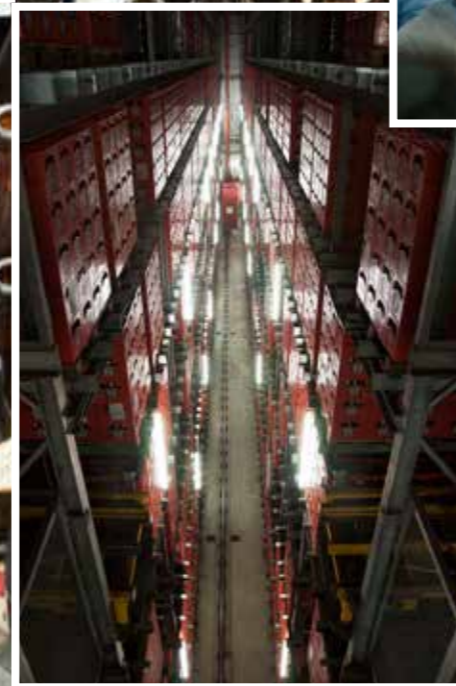
The Deutsches Museum is Germany's most popular museum. The Deutsches Museum consists of Main Exhibition Hall and other topical Exhibition Halls. As the topical Halls are outside Munich, the delegates focus on the Main Exhibition Hall to learn the development of science and technology.

The Museum possesses over 100,000 objects from the fields of science and technology in different chambers. The delegates first of all went to the exhibition chamber for engines. The chamber shows different kinds of engines driven by different means of power such as manpower, hydraulic, steam, diesel, etc. Moving to next chamber for aviation, the delegates

were able to see the flying history. This chamber shows some air balloons, the first aircraft in the world, the airplane used in world war I and world war II, the modern airplane, etc. After that, the delegates were guided to visit the Maritime Exhibition, where they could see Fishing Vessel "Maria", The steam tug "Renzo" and even a submarine "U1" with a length of 42m. Finally the delegates went to the chamber for the electricity experiment. This chamber consists of huge high voltage experimental set-ups which could generate thunder and electric arc. The delegates were able to see how the electric arc occurred between two objects, and its properties such as conductivity, extreme light and loud sound.

9 MARCH pm

# ERDINGER WEISSBRAU

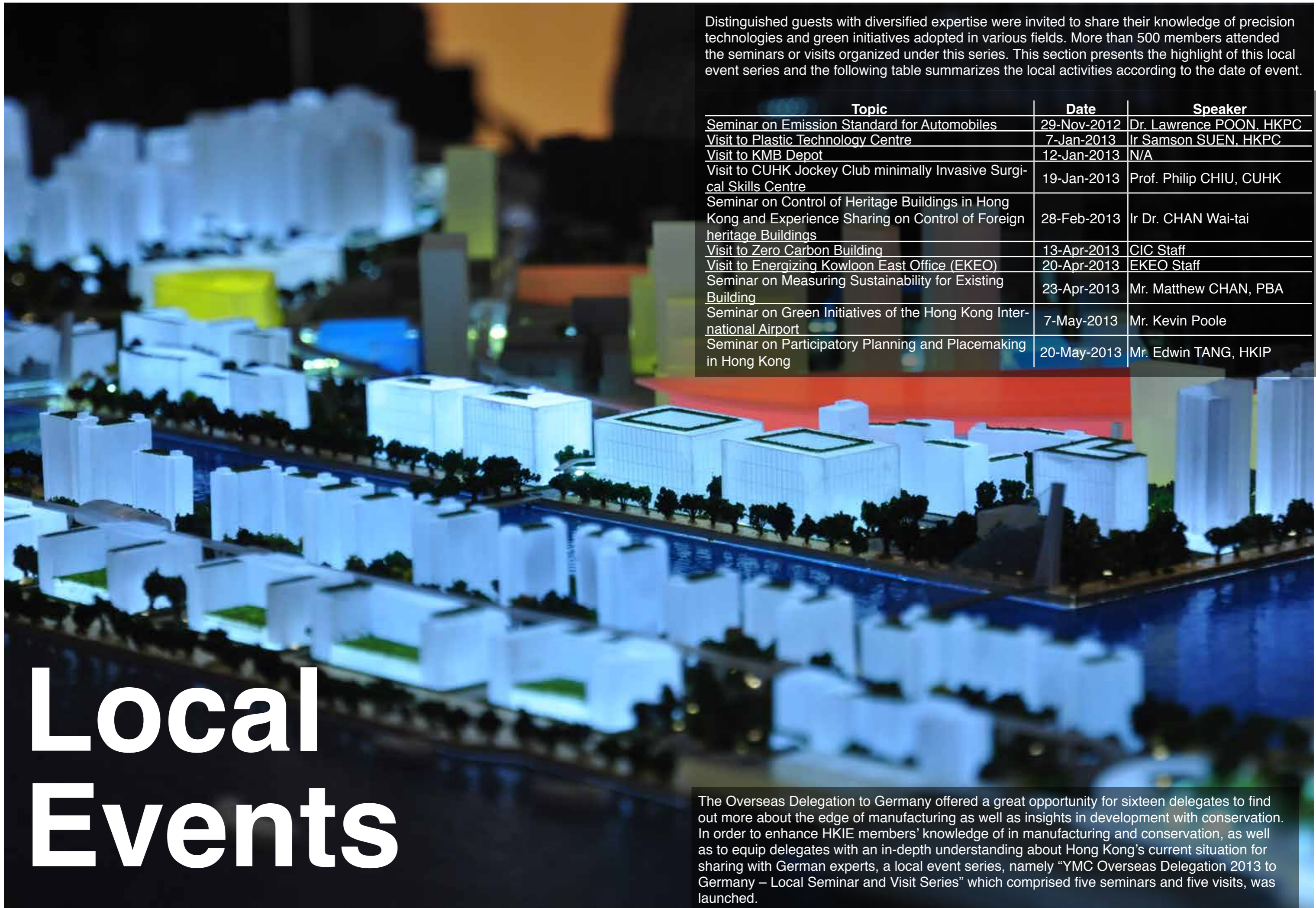


The Beer Factory, Erdinger was the last stop in this Delegation. The tour started by a video introducing the background and history of the Brewery. Established in 1886, Erdinger Weissbräu constructed a wheat beer brewery in Erding and started its production.

Then, the tour guide brought the delegates to the Brewery. First of all, she briefly introduced the ingredients used in their beer and explained the effects to the taste of beer. Erdinger currently produces 9 different beers which contain different amount of alcohol, excluding the non-alcoholic beer which is crafted for athletes. Then she took the delegates to the fermentation plant. To mature the beer and increase the concentration of CO2, a specific top-fermenting process, bottle fermentation, is used. It is a traditional method in Bavaria area and this is where it is most commonly found. By using bottle fermentation, the wheat beer matures in the bottle or keg but not in the tank. Erdinger Weissbräu is the only brewery applying this elaborate process in such a large scale with yeast-containing wheat beers. This ensures consistent and outstanding quality of flavour in all of its products. Afterwards, she brought the delegates to the production lines where about 1.08 million bottles of beer produced everyday. Finally, she brought the delegates to the Warehouse. The 9 storey warehouse was 18m in height and has stored 15 million bottles of beer to be delivered to all over the world and to achieve just-in-time delivery. The tour ended at the restaurant where the place the 9 different beers were tasted.



# BEER OF THE WORLD



# Local Events

Distinguished guests with diversified expertise were invited to share their knowledge of precision technologies and green initiatives adopted in various fields. More than 500 members attended the seminars or visits organized under this series. This section presents the highlight of this local event series and the following table summarizes the local activities according to the date of event.

Topic	Date	Speaker
Seminar on Emission Standard for Automobiles	29-Nov-2012	Dr. Lawrence POON, HKPC
Visit to Plastic Technology Centre	7-Jan-2013	Ir Samson SUEN, HKPC
Visit to KMB Depot	12-Jan-2013	N/A
Visit to CUHK Jockey Club minimally Invasive Surgical Skills Centre	19-Jan-2013	Prof. Philip CHIU, CUHK
Seminar on Control of Heritage Buildings in Hong Kong and Experience Sharing on Control of Foreign heritage Buildings	28-Feb-2013	Ir Dr. CHAN Wai-tai
Visit to Zero Carbon Building	13-Apr-2013	CIC Staff
Visit to Energizing Kowloon East Office (EKEO)	20-Apr-2013	EKEO Staff
Seminar on Measuring Sustainability for Existing Building	23-Apr-2013	Mr. Matthew CHAN, PBA
Seminar on Green Initiatives of the Hong Kong International Airport	7-May-2013	Mr. Kevin Poole
Seminar on Participatory Planning and Placemaking in Hong Kong	20-May-2013	Mr. Edwin TANG, HKIP

The Overseas Delegation to Germany offered a great opportunity for sixteen delegates to find out more about the edge of manufacturing as well as insights in development with conservation. In order to enhance HKIE members' knowledge of in manufacturing and conservation, as well as to equip delegates with an in-depth understanding about Hong Kong's current situation for sharing with German experts, a local event series, namely "YMC Overseas Delegation 2013 to Germany – Local Seminar and Visit Series" which comprised five seminars and five visits, was launched.

# Seminar on Emission Standard for Automobiles

“How to improve emission problems in the past, present and future?” is a big question in Hong Kong nowadays. Dr. Lawrence Poon, Senior Consultant in the Automotive Industry Development Division of the Hong Kong Productivity Council (HKPC) was invited to present a talk to delegates to discuss this topic. He gave a background on the current situation of the automobile industry in Hong Kong. The HKPC established a laboratory in 2006 to study known factors contributing to emission in Hong Kong, i.e. urban greening, emission standards, materials and systems. He then talked about the emission from commercial vehicles such as taxi. An assortment of news and articles were provided to illustrate how and why the government pushed to have the majority of commercial vehicle switch from diesel to LPG as part of the “Blue Sky Action”.



alternative fuels for automobiles. Biodiesel would be the immediate solution in lowering the emissions in Hong Kong as it was much cleaner and normal vehicles can combust biodiesel without making any modification to the engine. As for a long term solution, Dr. Poon talked about the increasing popularity of electrical automobiles. The government has been promoting the use electrical automobiles in Hong Kong by partnering with CLP to build the EV-MegaNet in 2009 which can provide many charging sockets for electrical automobiles in various locations.



The speaker also introduced 2 different



Plastic is by far one of the most frequently used materials and we are all surrounded by different kinds of plastics. Yet, the process of manufacturing plastic could be very sophisticated, especially fabricating plastic for designated usage. To allow delegates to appreciate the precision engineering involved in plastic manufacturing, a visit to Plastics Technology Centre



plastic plates in automobile. The rapid-heat-&-cool moulding could manufacture plastic with shiny surface (e.g. LCD TV panels). There were also several latest technologies under development, like Liquid Silicone Rubber (LSR) Injection moulding, Micro-Injection Moulding method, Energy label scheme for plastic machineries (SDF), and 4 in 1 Apparel Production Machine (ITF/RITA). After the seminar, delegates were led to visit HKPC Gallery showcasing an array of innovative technologies developed in past few years. Finally, the workshop of PTC was also visited. Most of the machines mentioned in the seminar were installed in this workshop.



(PTC) at the Hong Kong Productivity Council Building (HKPC) was arranged. Before visiting the laboratory, Ir Samson Suen, a senior consultant, delivered us

a presentation on plastic first. The scope of work of PTC was wide-ranged, covering materials selection and blending, engineering design, certification and testing, training and industry support. The strengths of PTC were importing and developing new and advanced plastic processing technologies, including: Water-assisted and Cool gas assisted injection moulding, thin wall injection and Mu-Cell injection molding from MIT, which was used for high precision

Visit to Plastic Technology Centre



## Visit to KMB Depot

Hong Kong is a small city. We have an extensive transportation network. Public Transport serves on of the means for mobilizing people from their homes to workplaces or for entertainments. One of the major concerns of buses should be the emission problem. To investigate, a visit to KMB depot was thus arranged. Delegates were picked up by a new KMB B9TL bus and representative from KMB briefed us the steps of

returning buses to depot. Some highlights on environmental aspect were that, starting from 2008, Euro V Diesel (only 0.001% sulphur content with Diesel exhaust fluid) is now fully adopted fleet-wise. Aircraft fueling nozzles were used in order to prevent leakage and waste of diesel. And for car washing, 70% wasted water would be filtered and reused to reduce pollution. For air-conditioning system, detailed examination was conducted every 10 years. The air-conditioner on new buses has been equipped with variable-frequency drive (VFD) so that cooling load could be adjusted efficiently. Last but not least, when talking about future development, KMB was testing the feasibility of using electricity buses in Hong Kong in order to achieve zero road emission. Two supercapacitor buses (gBus) were undergoing different tests at KMB Lai Chi Kok Depot.



Minimally invasive surgery is becoming more and more common in hospitals. These procedures are performed through tiny incisions instead of one large opening. Because the incisions are small, patients tend to have quicker recovery times and less discomfort than with conventional surgery. In order to know more about this high technology, we arranged the visit to CUHK Jockey Club Minimally Invasive Surgical Skills Centre. During the visit, Director of centre, Prof. Philip W Y Chiu, gave us an informative presentation and demonstration on the development history, application range, benefits and challenges of Minimally Invasive Surgical (MIS). MISSC is among the first perform laparoscopic colectomy for treatment of colorectal carcinoma. Besides laparoscopic colectomy technology, MISSC also research on endoscopic

surgery, a novel biomedical technology, and Da Vinci Robot surgery (the first surgery Robert did in Pacific Asia). Through these high technology, it can greatly minimize the operation time of surgery, blood loss of patient and time to resume normal diet of patient with reasonable price. This center is also the only MIS training center in Pacific Asia, and the number of trainers from all over the world has already broken through 1000. Delegates were enlightened through open discussion with representatives of MISSC. They gained a better understanding of the MIS technology.

## Visit to CUHK Jockey Club Minimally Invasive Surgical Skills Centre



Owing to rapid socio-economic development in the past decades, historic buildings are encountering the pressure of urban development and renewal.

Hence, protection of heritage buildings becomes as important as protection of occupants. In order to enrich delegates' knowledge of heritage buildings control in Hong Kong and practices in other foreign countries, the captioned seminar was held in Feb. The conservation principles of heritage buildings in Hong Kong is compatible use with the original intent, minimal disturbance to the historic fabrics, carry out reversible works and

## Seminar on Control of Heritage Buildings in Hong Kong and Experience Sharing on Control of Foreign heritage Buildings

repair old structures using conventional method and same material. Historic values should not be compromised with inappropriate adaptive re-use, which may incur substantial A&A works to heritage buildings that are jeopardizing. Conservation Processes should include conservation, maintenance, preservation, restoration, reconstruction, repair and adaptive re-use. Some successful examples of Heritage Buildings control in Japan and Germany were shared in the seminar.



Zero Carbon Building (ZCB) is a signature project to showcase state-of-the-art eco-building design and technologies to the construction industry internationally and locally and to raise community awareness of sustainable living in Hong Kong. To satisfy our delegates' curiosity on the environmental concern, a visit to ZCB was organized. This guided visit showed participants the latest green building design. Delegates could explore the innovative technologies to achieve zero carbon emissions through visiting the Zero Carbon Building. Our first spot was the Multi-purpose room which representatives from CIC have prepared us a 3-D video, arousing participants' awareness to global trend of Carbon

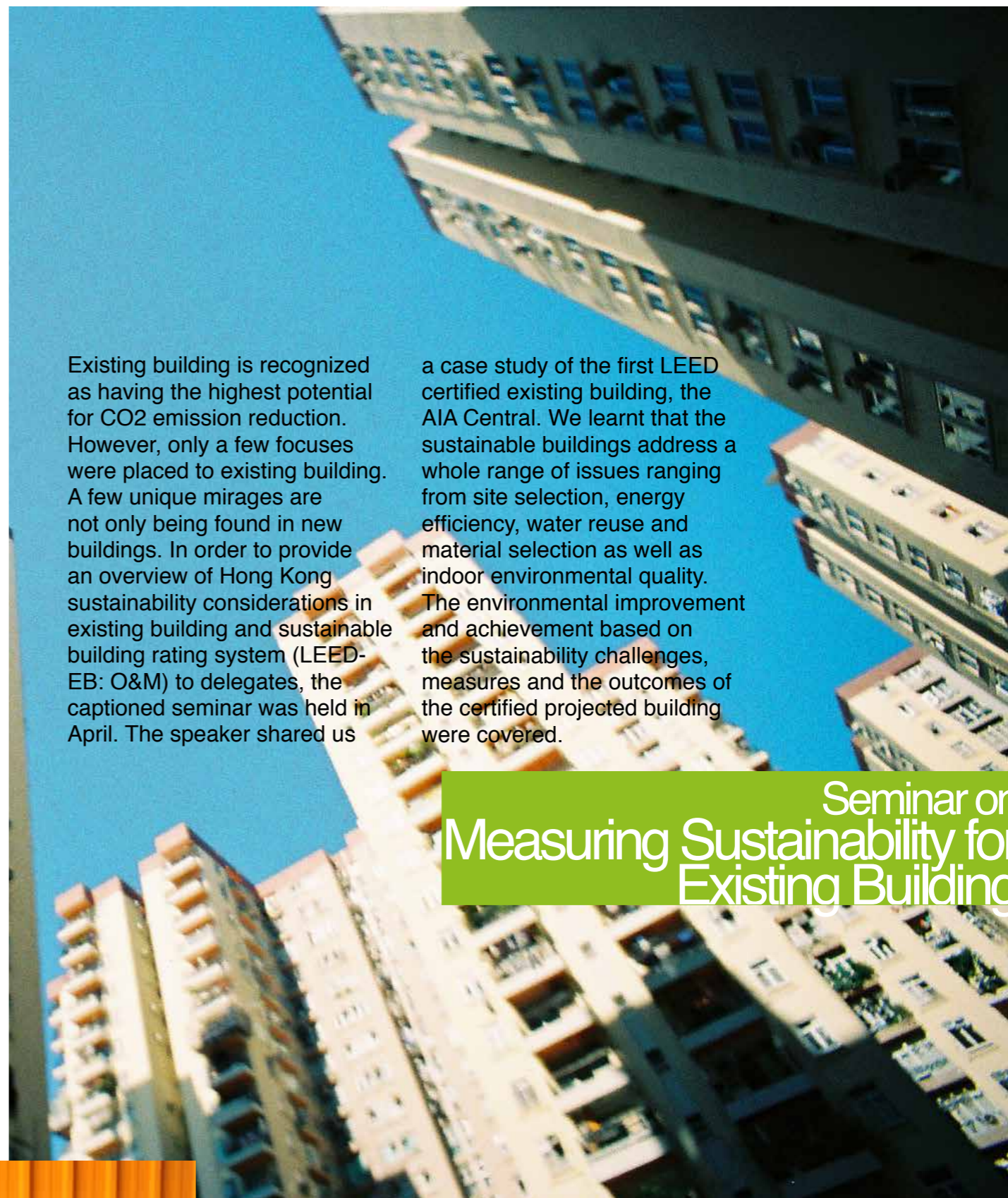
Reductions. We were then led to Exhibition Space. There was a model of the ZCB and surroundings. Participants could picture the whole ambience in bird-view. Together with some detailed explanations done by tour guides from CIC, we could know much about some dedicated arrangements of ZCB, which made it "Zero Carbon". For example, solar panels of polycrystalline, building-integrated, as well as CIGS thin-film type, are found in ZCB. Delegates treasured the chance of appreciating various edging techniques and applications on energy savings like wind catchers, lighting pipes, high-volume-low-speed fans, chilling beams and so on.



# Visit to Energizing Kowloon East Office (EKEO)

The Energizing Kowloon East Office (EKEO) was inaugurated on 7 June 2012 to steer, supervise, oversee and monitor the development of Kowloon East with a view to facilitating its transformation into another premier CBD of Hong Kong to support our economic growth and strengthen our global competitiveness. With the development of Kai Tak as a catalyst for the revitalization of surrounding neighbourhoods, the government's new initiative for "Energizing Kowloon East" (EKE) is gradually capturing public attention. To satisfy our delegates' curiosity on the urban planning, we have organized the captioned visit in April. This guided visit let us know more on the development of Kowloon East in the past few years. Participants explored the past, present and future

in the face of rapid urban transformation through visiting the EKEO. As explained by the speaker, the EKEO has some hidden green initiatives. Some examples are using recycled freight containers as modular construction, coupled with lean construction methods and low embodied energy materials, such as paving blocks made from fly ash. He further explained the concept of passive design with some practical measures, like using the structure of the Kwun Tong Bypass to shade the southwest façade of EKEO, which significantly reduces solar heat gain and keeps the building cool.



Existing building is recognized as having the highest potential for CO2 emission reduction. However, only a few focuses were placed to existing building. A few unique mirages are not only being found in new buildings. In order to provide an overview of Hong Kong sustainability considerations in existing building and sustainable building rating system (LEED-EB: O&M) to delegates, the captioned seminar was held in April. The speaker shared us

a case study of the first LEED certified existing building, the AIA Central. We learnt that the sustainable buildings address a whole range of issues ranging from site selection, energy efficiency, water reuse and material selection as well as indoor environmental quality. The environmental improvement and achievement based on the sustainability challenges, measures and the outcomes of the certified projected building were covered.

## Seminar on Measuring Sustainability for Existing Building



## Seminar on Green Initiatives of the Hong Kong International Airport

Commissioned since 1998, the Hong Kong International Airport (HKIA) is one of the world's largest passenger terminal buildings. It is operated by the Airport Authority Hong Kong, 24 hours a day. In 2012 HKIA handled 56,057,751 passengers, making it the 12th busiest airport worldwide by passenger traffic. It also surpassed Memphis International Airport to become the world's busiest airport by cargo traffic.

HKIA is committed to be the World's Greenest Airport, the first commitment of its kind worldwide. Since the days the airport was designed and built, HKIA has devised and implemented numerous innovative programmes and initiatives

to build and operate a green airport. Indeed, environmental protection is a core value of HKIA. From the airport's design and construction, to its operations and continued development, they strive to act in an environmentally-friendly manner.

After visiting the Frankfurt Airport during the Delegation, delegates appreciated our wonderful well-known airport, not only from its operating point of view, but also environmental view. The third runway project, as well as challenges encountered when balancing development and environmental protection, were keen topics and our delegates have shown interests in these as well.

Urban planning has become highly political and controversial in Hong Kong nowadays. From individual developments such as columbariums to regional level planning of the NENT (North East New Territories), various planning issues have ignited unanticipated public response. Criticisms on the planning system for its inability to meet public aspiration are common. The question in Hong Kong today is how and to what extent the local community shall be involved in plan making process? How can criticisms, or confrontations in some cases, be effectively resolved to promote a smoother planning process in Hong Kong? To help delegates in answering these questions, we have to understand two planning concepts. Firstly, "Participatory planning" emphasizes the involvement of the entire community in the

strategic and management processes of urban planning; or, community-level planning processes, urban or rural. On the other hand, "Placemaking" is a multi-faceted approach to the planning, design and management of public spaces. We have invited Mr. Edwin Tang, Co-Chairman of the Young Planners Group, The Hong Kong Institute of Planners to discuss the effectiveness of Hong Kong town planning system, how the community can be involved in the planning process and what bolder measures are required from the Government to make Hong Kong's urban environment a better place for all. After the seminar, our delegates could answer the questions readily.

## Seminar on Participatory Planning and Placemaking in Hong Kong

# Insight

Through various desktop study, the delegation to Germany and supporting locals and seminars, the delegation team will present in this section some insights gained from this delegation. The insights can be divided into three major groups:-

1. the German Culture
2. Quality, and
3. Originality

The three major insights will be discussed in the following section.

## Persevere and Pragmatism – The German Culture

Culture always plays an influencing role in our life. It shapes our society. The culture we experienced in Germany is different compared to the culture in Hong Kong. Here we shall discuss the diversity of culture between Germany and Hong Kong and the reasons that make Germany successfully to be a leading country in the Manufacturing Industry.

### Thinking Persevere and Pragmatism

The culture of Germany starts off with seriousness and persistence. With these prominent features, German goes for pragmatic products with higher reliability and capability to be used. The Bofinger Chair (BA1171) is a very remarkable example.

In the visit to the Hong Kong Design Institute (HKDI), one of the most famous German products, the Bofinger Chair (BA1171) was shown as the innovative product that last for some 50 years (V&A Museum). Designed by German designer Helmut Bätzner, the fiberglass-reinforced polyester Chair had led the manufacturing industry to a whole new level. Simply by

mould and press, followed by minimal scrapping around the edges to remove extra polyester, this Chair simplified the manufacturing process needed, thus enabled mass production, which is the very first of their kind (V&A Museum). This simple-looking chair represents ergonomics, compactness, durability and economics, which made it the first one-piece mass-produced plastic chair in the world, and a leading design of plastic chair in the past 50

years. Once a design came out, it is very important to design a policy or a system to maintain the standard and quality we shall provide. It is recognized that German are stricked to the quality assurance. It could be reflected by the management of one of the busiest airport in Europe, the Frankfurt Airport. This airport adopted a "Ten Minutes Out" in their decision-making policy improve taxiing within the airport for aircrafts. This is a policy that allows all flights to have 10 minutes from final approach to landing (Fraport AG, 2012). It can be seen as a very effective air traffic management for other airports such as Hong Kong to ease the current heavy traffic.

Since the industrialization in the 80's,

### Sustaining Persevere and Pragmatism

The other feature that shaped the culture of Germany is German's attitude towards the use of resources, while the pragmatism in Germany leads to an efficient working culture, as well as a long-termed planning in a given task. It can be reflected from the approaches of developing infrastructure and office culture.

The OlympiaPark was designed and built during 1968 to 1972 for the 1972 Summer Olympic Games in Munich and it was designed to become a public space for general public's enjoyment after the Game. Even today, this approach is still employed by other holding cities of Olympic games, for examples, Beijing 2008 and London 2012. Hence, general public is able to enjoy the Olympiapark after the Games was completed. The Olympiapark was also designed to cater for mega-events with large number of participants. For instance, the swimming pool was designed to accommodate a large number of spectators by installing a glass façade on one side of the swim hall (Organisationskomitee für die Spiele der XX Olympiade München 1972 e. V., 1972). There were two design criteria: 1. to promote "equality" which was a hot topic at that time, which the general public who cannot afford the ticket were also able to watch the game, the "public spectator seats" allows the promotion of equity as well as saving capital cost for building more seats inside the swim hall. 2. the concentric public seat were designed so that it became stairs to provide access to the swim hall. This also provides easy access for the general public to enjoy the public facility after the game.

Similarly in Hong Kong, the Energizing Kowloon East (EKE) initiative was a brand new idea from





The Rubble Hill Concept (Photo source: www.wikipedia.com)

the Hong Kong Government in the introduction of city planning. Ever since the heyday of manufacturing industry, the Kowloon Bay and Kwun Tong District has become an area full of vibrancy and liveliness. The CBD2 (Connectivity, Branding, Design and Diversity) idea formed a holistic strategy in re-developing the Kowloon east area (Energizing Kowloon East Office).

During the course of the redevelopment exercise, certain areas were developed with the consideration of public space. The Zero Carbon Building and the Kwun Tong Promenade Stage 1 have already showed the determination of the Hong Kong Government in providing public space. The Conceptual Master Plan 2.0 provides a more comprehensive idea on the requirement in developing the East Kowloon to achieve the CBD2 so that the redevelopment, when completed, can be a more diversified area for the public (Energizing Kowloon East Office). The delegation team hoped the EKE would consider in their planning a longer term usage so that the district when completed, would provide a better space for the public and their legacy.

As a side discussion, Publicity techniques were also seen in the German Olympics. Back in 1968 when the Organising Committee

of Munich Olympic Games (OC) started to prepare the Olympic Games, one concern is that the admission rate for the games are relatively low, and this problem was still existed even in the Olympic Games 2012 in London. The OC therefore, instead of setting target on "trying to sell every admission ticket and thus have as much profit as possible, rather the goal was to enable as many people from as many countries as possible to take part in this sporting and artistic event" (Organisationskomitee für die Spiele der XX Olympiade München 1972 e. V., 1972). With such goals set, the OC aimed at to create an Olympic games targeted on general tourists rather than athletes and spectators and took off with the creation of the successful Munich Olympics.

Other than EKE initiative, the Central – Wan Chai Bypass and Island Eastern Corridor Link (CWB) project is a good example showcasing the power of public engagement (Highways Department). The project consists of a 4.5 km long dual three-lane trunk road with a length of 3.7 km tunnel section, aiming at to alleviate the traffic congestion along the existing Gloucester Road - Harcourt Road - Connaught Road Central corridor. The original design included a substantial portion of flyover instead of tunnel running

along the existing shoreline of the Victoria Harbour. However, having consulted the general public views with a proactive approach, the project team revised the design from flyover to tunnel option in a quest for protecting the view of the Harbour. It came with a cost – the alteration doubled the budget to HK\$28.1 billion.

The in-depth yet holistic public engagement of the CWB not only allowed the public to voice out their views, but more importantly, it enabled the community to appreciate the works happening in the city. It is a choice, and a balance between cost and public views. After all, the purpose of engineering is not to create an engineering wonder by building a complex structure or by erecting a landmark for the sake of it; it is to serve the community – the end users.

Turning to the culture of use of resources, this can be seen in Germany's offices. During the visit in the Deutsche Bank, what catches the delegates was the concept of "hot-desking". The idea was to provide a clean and organised desk space for efficient use by the staffs. Every desks looks the same under Hot-desking, and employees could work anywhere around the workplace even in the director's rooms. There was no fixed seating



The EKE Conceptual Master Plan 2.0 (Photo source: http://www.ekeo.gov.hk/)

planseat within the company and thus most seats could be utilized by full time or part time staff. The rationale behind was to save space. Indeed within a company, not every staff was stationed at office. Due to different work nature, some of them may have to travel around, or deployed to other site office. Hot-desking aims to utilize these "temporary empty" seats by letting other employees to "occupy".

Although the business model and nature of a bank is similar in Hong Kong, offices in Hong Kong are more or less "individualized". Staffs are, more likely, decorate his or

her work station with personal signature. In addition, a modern office looks like those at Deutsche Bank only means monotonous. Hong Kong is famous for her momentum and fast pace of growth, and surely such working cultures are difficult to follow. Therefore, the concept of "hot-desking", although proven to be efficient, are hard to be applied with a different culture and therefore probably would hinder the productivity of staffs.

**Persevere and Pragmatism - the reason behind**

The remaining question is: Why does the culture between Hong Kong and German are so different? Is there any root cause that led to Germany's current position and can these culture can be adapted in Hong Kong to make a better tomorrow?

This culture of pursuing and maintaining the high level of standard was probably triggered by a protective initiative from the British in the 18th Century. On

23th April 1887, British revised the "Merchandise Marks Act", where "Articles of foreign manufacture, and any packages of such articles bearing any names, brand, or mark being or purporting to be the name, brand, or mark of manufacturers resident in the United Kingdom... shall, unless accompanied by the name of the country in which such place is situate, be deemed for the purpose of this section to state or imply that such articles were manufactured at a place in the United Kingdom." (Payn, 1888) This act aimed to warn customers about cheap fakes and promote the purchase of domestic products. All of a sudden the Germans were panic if this would lead to a loss. Yet sooner or later they realized that damage to their business was unfounded. On the contrary, these markings revealed not only the actual origin of a product, but also stand for quality, instead of cheap products. English families found that many products, like tools, toys, jackets, dolls of children, mugs in the cupboard, water pipes and so on, were imported from Germany. And so the trademark missed the intended effect, rather than stopping customers from buying German products, it turned

out to be enhancing awareness of German goods to people all over the world.

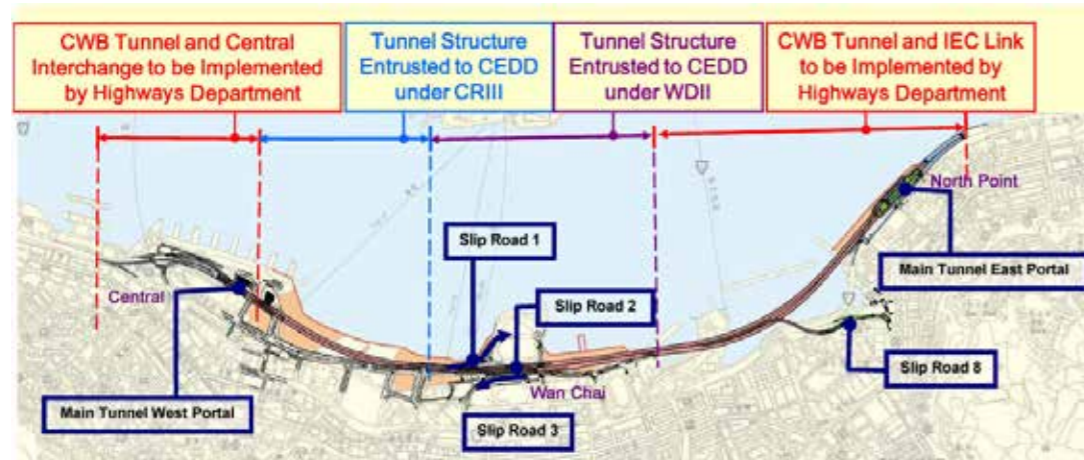
Moreover, the education system also contributes to the culture of Germany. In Germany, apprenticeship plays a very important part in the education system. Apart from learning theories at school, students could have chances to be employed by firms. Students are required to apply their knowledge learnt from school during placement, and the firm in return would nourish them by giving them invaluable experiences. This practice was seen from the visit in Leica AG, where a youngster working inside the lab, performing calibration using laser machine. This common practice leads to the growing of productive staff that can satisfy the market needs. As Germany relies greatly on industries, technical cultivation is a core element to inherit culture and quality in developing economic growth.

In Hong Kong, the major difference lies on the economic structure. Industrialization was ceased after the 80's. Due to uncompetitive cost of labour and rent of factory plants,

factories had moved out from Hong Kong, leading a drop in demand of craftsmen. As a result, education in Hong Kong focuses rather on textbook knowledge rather than practical experiences.

Hong Kong also possesses apprentice system. The Apprenticeship Ordinance promotes and regulates the training of apprentices. (Department of Justice). Anyone aged between 14 and 18 employed in one of the designated trades without having completed an apprenticeship must enter into a contract with the employer. Subject to different nature, apprenticeship normally lasts up to three to four years. However, with the shrunken manufacturing industries of Hong Kong, this became a less attractive option for youngsters when choosing their career.

With the backdrop of Culture in persevere and pragmatism, German is well known for the pursuit in quality products and we shall discuss in the next section quality of German.



The Central - Wan Chai Bypass and Island Eastern Corridor Link (CWB) (Photo source: <http://www.cwb-hyd.hk/>)

## Quality- "Wisely Precisely"



**O**n the strength of this culture, Germans pride themselves. Continuous improvement is a core to their business and personal lives. They are never satisfied; Germans are verbal what needs to be better. No matter the food, clothing, housing and transportation, Germans request for the better able. And hence product quality is an understatement. Their consumers ignore or boycott poor quality at any price.

Before the discussion, let's have a definition of quality. Based on the definition defined by Jimena Calfa (Calfa, 2010):

- "Quality is:
1. A characteristic of a product or service that bears on its ability to satisfy and exceed\* stated or implied customer needs, and thereby provide customer satisfaction.
  2. Freedom from deficiencies."

Nowadays, the customers are who define the meaning of quality. This is the perception to them, based on their needs and preferences with satisfaction. Only the products or services that exceed customers' expectations are the ones influence the customer willingness to pay; and therefore have a competitive advantage over the products that

only satisfy customers.

We shall note that customers and manufacturers sometimes differ in their definition of "quality". To most customers, quality signifies the features of the product which respond to their needs, including freedom from failures, plus good customer service if failures do occur. Here is when the best quality definition is "Fitness for Use".

In contrast, many manufacturers focused on the specification of products which means the advance features or techniques to products, but those were not conformed to the customers' necessity. The quality they defined may fail to consider numerous factors which influence quality as defined by customers: storage, reliability, maintainability, customer service, and so on.

Thus, those industries would like to provide quality products/ services to customers should understand the customers' needs. Quality shall be assured by tests and improved by latest technologies.

The products with "Made in Germany" are now regarded as reliable, high-quality and even perfect. It can be reflected from all kinds of industry in Germany, including automobile, camera and beer manufactures. Through the

Overseas Delegation, the delegates has observed how Audi and BMW insisted on manufacturing excellent vehicles by using high-precision automatic robots and lots of quality control procedures, as well as appreciating how Leica's marketing strategy support the cost of high-precision production and enjoying the premium quality of Erdinger beer (Erdinger Weissbräu) with affordable prices. We are amazed by the persistence pursuit of the Germans in quality: from an automobile or high-end camera which costs thousands or even binoculars of millions, to a bottle of beer which is affordable by public, quality always ranks first.

Moreover, the delegates were stunned by the scrupulous sculptures inside the Neuschwanstein Castle. The owner, Ludwig II of Bavaria, spent his lifetime to improve everything in the castle, from art works to technologies; all of them have presented what quality is. Not only did the historical buildings impress the delegate a lot, but the modern skyscrapers, Deutsche Bank Twin Towers has also demonstrated the perfect application of automatic sustainable designs.

Herewith the Discussion to be covered, namely "Standards up keeping and Automatisations", "Empathy" and "Lifelong Services".



How do automobile unify standard?

**What standard and automatisisation correlated and how manmade can be used**

In the situation of the production of automobile, engineers had to develop a prototype as a reference for mass production. From the material used to the design of manufacturing process, they largely depend on computer simulation and calculation. To ensure the prototype is flawless, engineers will keep adjusting and modifying the design until the last minute. In order to accurately copy the perfect prototype onto the assembly line, both Audi and BMW plants were equipped with almost-fully automatic assembly robots, producing more than 300,000 BMWs and 550,000 Audis in 2012. The secret of the production robots to be assembled parts so fast and accurately should be in the reason of high precision motors. With the help of camera scans, optical test and laser-based examination, robots can receive rapid and precise feedback data to maintain its quality standard non-stop. According to the delegates' observation, almost the whole assembly process was carried out by robots but there were still lots of workers working along the production line. Why human is needed? Can human produce as high quality as a robot does? Leica had a very detailed explanation on our questions.

**Apart from respect what thing else?**

Leica Cameras were hand-

assembled by experienced technicians, from lens assembly to painting and carving, more than 30 production processes were finished by hands. We have seen how the technicians manually blackened the lens edges to achieve a perfect result and the hand-lacquered engraving. All of the processes required great skills and trained eyes. Apart from the skills, dust-free environment is important. According to the asseveration at Leica manufacturing plant, there was no or limited windows, which was the characteristics of a cleanroom design. HEPA(High-efficiency particulate air) filter and constant positive pressure were used to prevent dust from entering the cleanroom. Under these correlations, Leica guarantees that all cameras are in the highest quality, regardless the high labour cost and small production amount. Somebody may question how can Leica handcrafted cameras with such high precision? Will there be human errors during the assembly process? In present precision technologies, machines were not prepared to precise to high performance. Hence, the parts inside camera were machine-made and embedded by hand. In Leica plant, lens are polished and made by both traditional and CNC (Computer Numerical Control) machines operated by experienced technicians. According to the Guide explained, one single lens element produced from each machine; and each machine can perform the all 3 process to ensure consistency.

Every single step produced by different machine might cause deviations which lead to spherical defect. To conclude, Leica believe the experienced technicians can add humane features into the camera which machines cannot provide but at the same time Leica also believes machines can maintain the accuracy and quality. This concept is also applied in automobile production. As mentioned above, we found there are lots of workers working along the automatic vehicle assembly line, BMW quality management team shares similar experience.

In a car manufacturing, machines can check everything measurable, like tolerance, dimension, as well as clearances. However for something which is hard to quantify, like comfort, appearance and handling,



Photo source: <http://www.shootingfilm.net>

it is necessary to utilise our sense organ to observe, touch, smell and listen in order to detect flaw parts or inaccurate works in the assembly

line, preventing the accumulation of errors until the end of production. It proves that humans are still important as they can determine what the machines incapable of. It matches what Leica believes: all products need human senses to be flawless. However, man-made process are also standardized and governed by an international regulation – ISO/TS 16949 under ISO9001.

**How do automobile do, how to unify standard?**

It is necessary to first explain the full picture inside the automobile plants. There were also limited windows inside the manufacturing plant, preventing dust or insects from entering the production area. Especially the painting station where the completed body-in-white needed to be sprayed on several layers of paint, a complete dust-free environment was introduced. If any dust or particles presented, the appearance will be seriously affected. To ensure the paint was sprayed evenly, industrial robots were responsible for this duty. Moreover, as robots can work under dangerous environment without taking rest, they were also responsible for doing thousands times of welding on each car in the body shop. The fireworks-like sparks were generated from the assembly line non-stop, which was impossible for a worker to handle. It was a role model to show how automation can increase safety, speed and quality at the same time. However, there was a team will never agree robots can take humans place in the automobile industry, the quality management team.

Nowadays, the complexity of quality management increase as complexity of vehicle increase, for example there were more and more electronic components installed on modern cars: ABS, ESC, ACC and electronic control equipment etc. With such large amount of complicated vehicles produced, BMW (Green) had a quality management team infiltrate along the assembly line, ensuring every single productions step is executed perfectly during the entire process. Designed for global organizations in the automotive manufacturing and supply chain, the ISO/TS 16949 regulations are intended to provide a holistic quality management and possibly certify want.

No matter the products are manufactured by robots or hands, not surprisingly, most of the manufacturers will still carry a series of testing (Deaton) to found if there is any flaw. Like Audi, they will conduct different extreme tests on the vehicles within 19 weeks in order to simulate 10 years aging process, ensuring the vehicle can operate without faults within the assurance period. Those tests include 2.5 million km test driving under extreme hot, cold, salty and humid environment. Engineers also use computer to analyse the car performance in a 300km/h wind tunnel and of course, conduct a series of impact test to guarantee optimum safety standard to both the car-users and pedestrians. Similar to the quality control in BMW, not all tests are being quantified, human sensitivity also possessed an important position. Test drivers detect the inaccuracy by their ears, eyes, and hands during test drive. Especially, the abnormal noise, inappropriate operations or disharmony handling can never be measured by computer.

**How German step further?**

In the past, the American and European automobile manufacturers required their suppliers to meet in accordance with their own systems, such as QS9000 (North America), VDA6.1 (German), EAQF (France) and AVSQ (Italy) and other quality management standards. In order to meet customer requirements, the suppliers have required spending huge amount of money to get all the necessary verification of the certificates. In view of this, a technical specification, ISO/TS16949 was first launched in 1993, establishing a global unified standard of the automotive industry quality management system certification.

The ISO/TS 16949 was jointly developed by the International Automotive Task Force (IATF) members and submitted to the International Organization for Standardization (ISO) for approval and publication. IATF members include the following vehicle manufacturers: BMW Group, Chrysler Group, Daimler AG, Fiat Group Automobile, Ford Motor Company, General Motors Company), PSA Peugeot Citroen, Renault SA, Volkswagen AG and the vehicle manufacturers respective trade associations -

AIAG (U.S.), ANFIA (Italy), FIEV (France), SMMT (U.K.) and VDA (Germany). (To be worth mentioning, Audi AG is a majority owned subsidiary of Volkswagen AG since 1966.)

Based on ISO9001, ISO/TS 16949 is the integration of the QS9000, VDA6.1, EAQF, AVSQ and other automobile quality management system. It has been adopted by the IAF members for sure and other world-renowned automobile manufacturers. Meanwhile, JAMA (Japan Automobile Manufacturers Association) has also participated in the development of ISO/TS 16949:2002 standard, meaning that Japan's major automobile manufacturers also gave weight to this standard.

**Empathy - What do we need**

In the global, it is found that most of the products are users' expectation driven instead of addressing the needs of the end users. There are many reasons behind. First, it is difficult for user to express their need to product manufacturers. It is found that the end-users are already familiar with existing world. It is difficult for them to see the new potential of improvement. Second, measuring new ideas is impossible before the product launched. So, most of manufacturers and services providers are intended to follow traditional way of works which making the design more complicated and provide some add-on values which does not valuable to the end-user. Third, since the performance index are usually based on sales and previous product experience, the distance between designers and end users increased. The designers working on a performance index which has already disconnected with the actual needs of end users. To overcome this, it is important to have a strong observation of human behaviours, grasp of information, think from the basic (user-orientated) and logical thinking. It is found that the German has applied these principles in their processes.

**Observation**

Before the Delegation, some researches were done on Erdinger, Leica, Audi and BMW's business model. Leica's marketing strategy was based on the persistent of quality. In accordance to the rules of quality, quality is not equal to expensive price, but the quality

deserved along with the price and satisfaction. Hence Leica believes those customers desire quality are appreciated to purchase a Leica camera even it may be too expensive to most consumers. This is an alternative business models which were rare in Hong Kong. Hong Kong Productivity Council (HKPC) is one of the examples, the speaker at the HKPC visit shared that the researches in HKPC were depended on market value. They will only invest the studies with market needs. This is evidence on market drive product or services. Although it shall not be proved Hong Kong is a highly market-driven city, this is one of the intentions. Leica successfully shows that whatever it produces, there will always be a group of customers supporting as long as the products are in the highest quality.

The business model of Audi and BMW are not so extreme in this case. Even though they both produce high quality luxury cars, they still care about the cost

of production and affordability of consumers. Different form Leica, Audi and BMW both sets up their factories around the world, including some developing countries like China and Indonesia. Comparing with "Made in Germany", the production cost in China and Indonesia is much lower due to the lower wages, lower cost of materials and equipment etc. Besides, thanks to the highly automatic assembly lines, the time and production can be optimized as well as less workers are needed, as a result, the cost of production can be significantly reduced. However, it does not mean that Audi and BMW sacrifice the quality. As mentioned above, each overseas Audi and BMW needs to be inspected by quality management team before shipping. With the quality management system ISO 16949, the quality standard should be as high as the one in Germany. After the visits of Audi, BMW and Leica, the delegates finally understood "You got what you paid for."

Erdinger is in another point of view. Dated back to 1165, the first penalty regarding the sale of "bad" beer was found in Augsburg. Since then, the beer brewing in Germany could be said regulated by law.

Apart from this penalty, after 300 something years later, a so-called "Brewer's Oath" emerged. Each brewer took the oath and ensuring only barley, hops, and water were used for brewing beer, with no other ingredients as additive.

This Oath indeed was the origin of Purity Law (Hardy, 1993). In 1493, an order was enacted, the Bavarian Purity Law, which stated nothing could be added to beer other than barley, hops and water.

Nowadays, the rules of the Purity Law are well-stipulated in the German Beer Tax Law, with just a few, minor amendments. This law also contains regulations regarding the brewing process. For bottom-fermenting beer, only barley, malt, hops, yeast and water can be used.

Also for top-fermenting beers, the use of other cereal malts, such as wheat, is also allowed.

Customers could easily distinguish whether the beer is brewed under the Purity Law or not. Although the European Court allowed beers to be sold in Germany which are not produced according to the Purity Law, these beers must be clearly labelled. On the other hand, for beers brewed under Purity Law, they should possess a quality seal stating "brewed according to the Purity Law". And for Erdinger, the beers are of course, brew under this Law.

The concept of Purity Law was so brand new to delegates. Beers are sold In Hong Kong but none of us has ever noticed if such "quality seal" existed. To most of the customers, whether the beers they purchased are of "Purity Law" or not does not as matter as the taste. But Germans do care about their quality of products.

Let's take Tsingtao Beer as an example. China conceded Qingdao area to Germany during 1898 to 1914. She inherited not only the German style buildings, as well as one of their cultures – the beer. Originally, Tsingtao Beer was brewed in accordance with the Purity Law, therefore the only ingredients that were used were water, barley, and hops. However, after privatization the recipe was changed; like many other beers made in China, Tsingtao Beer contains a proportion of the less-

expensive rice as an adjunct in the mash.

However, we opined that even Tsingtao beer was not brewed under Purity Law, it does care about quality. Indeed, the uniqueness of beer is nothing more but chemistry. It is the substances, or precisely, chemical compounds, form the taste of the beer. Every brewery thus is making beers of unique taste.

One of Tsingtao's milestones was to identify all the chemical compounds which present in the beer, forming a fingerprint of aromas. This programme was successfully launched in 2002, and was considered as a great-leap-forward to Tsingtao. By using different chemical methods, like gas chromatography, liquid phase chromatography, ion chromatography, electronic inductive plasma radiation spectrum, and so on, Tsingtao eventually ended up with 214 methods of targeting various aromatic substances, thus established their "DNA fingerprints".

The programme has changed the concept of brewing. We could see that this sophisticated testing methodology led Tsingtao's brewing history into a scientific one. Apart from checking for presence of aromatic compounds, they further investigated and aimed to sort out a checklist of compounds for quality control. They succeeded and various aldehydes, ketones, fatty acids, sugars, organic acids, non-

organic compounds, amino acids, as well as over 170 compounds, were spotted as checking criteria.

The above helped Tsingtao in developing a much fair basis for quality control, in return securing their high standard of products. Moreover, this would be much beneficial to their research and development as well.

#### Objectives

From Erdinger to Tsingtao, we can see the technique transferred. In the workshop in Leica Factory, lens (Leica AG) was also fully utilised. Lens is a material with over 100 different kinds of glass materials. Optic designers who design lens know exactly different colour from raw materials, and adjust for perfect ingredients of lens. A professional lens designer knows the secret key, different materials/process could handle micro cracks. The glasses firstly grinded into coarse lens and re-grinded to fine the desirable focal length, afterwards, it polished to provide a curvature for focal length desired. This process is the grinding process. The normal grinding process called for the lens maker to walk around the grinding stand, sliding lens back and forth over the tool, while rotating the lens. A quality control process carried out for checking micro-crack of the lens. The lens with tiny imperfection which is hardly discovered by consumers will sell to other companies, as they are actually still up to standard indeed.



**Sustainable designs for buildings The Life-long customer Services**

In our daily, most of the products will be defected after a period of time, say 2 years. There are some products claimed on the life-long customer services. They are proud of themselves. They have full confidence on the products. One of the examples is Leica. Leica is well known on the life-long services, no matter the camera bought for a long time ago, Leica would provide permanent guarantee. This sustainability was also served in buildings. The Deutsche Bank Twin Towers, also known as Deutsche Bank Headquarters, there is refurbishment and modernization work on the Group headquarter between 2007 and 2010, minor changes were made to the exterior. while the building's

technical systems and interior design and furnishings were completely overhauled. Openness and innovation were the two guiding principles behind this transformation. Great value was placed on energy efficiency and environmental sustainability when renovating the building, which helped the new Deutsche Bank towers won the LEED platinum awards (Leadership in Energy and Environmental Design). After the visit, the delegates concluded that automation played a very important role on the green technologies application.

One of the advantages of automation is reduction of human resources. There was automatic BMS (Building Management System) equipped in Deutsche Bank Towers to control the air conditioning system, windows opening status, lighting and elevators. No extra staff was need

to control all these equipment and in addition, computer centralized controls can use the data from sensors spread around the buildings to calculate the best operation. It can never be conducted by human with same speed and same accuracy.

**Air-Conditioning System**  
Cooling and heating systems save energy by automatically adjusting to the surrounding temperature. The optimized heating and cooling ceiling system is equipped with newly developed radiant elements for the thermal activation of the building's mass – resulting in a 20% higher thermal output than conventional system. The new system now uses water as opposed to air; the air exchange rate has been reduced. As a result, the new ventilation systems use less than half the electricity needed before.

**Redesigned Windows**

One of the key features of Deutsche Tower, the windows controlled by BMS can be opened parallel to the façade as they were equipped with motorized scissor hinges – making it possible to have natural ventilation even at wind speeds of up to 180 km/h. However, they are not always able to be opened. According to observation, the windows can only be opened when the required indoor temperature is equal to or higher than outdoor temperature.

**Lighting**

The tubular lights especially designed for the office floors are equipped with high-tech prism technology – achieving a light output of 86%. The lights are also automatically dimmed when the daylight coming through the windows is sufficient of some office areas are not in use.

**Elevator System**

On passing through the employee entrance, a built-in chip in the bank ID card automatically calls the next available elevator. This optimizes travelling times. Depending on their direction and load, the elevators also generate electricity, which is fed into the main power supply.

In fact, recently the Hysan Place, located in Causeway Bay, was also a winner of LEED platinum. It was also the 1st LEED-CS (Core and Shell) Platinum mixed use office and vertical mall complex in China. There are also lots of automation features applied inside the building, which is worth comparing with the Deutsche Bank Towers.

**Energy & Atmosphere**

Total enthalpy recovery wheels were installed at PAU to remove heat from incoming fresh air to the exhaust air in order to reduce the

building's cooling load. By using temperature sensors, outside air will be automatically used for direct space cooling when the right climatic conditions allow. In addition, CO2 fresh air demand controls provide better indoor air quality by auto-regulating the quantity of fresh air according to occupation levels. Besides, light-sensors will respond to the availability of daylight to control the lighting at perimeter areas to save energy.

Indoor Environmental Quality Mixed mode ventilation, which means occupants can open the top and low level operable vents to enjoy natural ventilation during suitable external conditions. The principle is similar to Deutsche Bank automatic-open windows. When vents are opened, BMS will automatically switch off the excess air-conditioning to individual perimeter zone to save energy.



**R**especting to the cultural root shall be a core value to every of us. Whilst moving onward for the better, we shall take effective measure to our roots, included but not limited to heritage, traditions, civilizations; and, another importance, the natural resources, we treated them. They are our origin.

An arousing popularity website in the Internet recently showed there is a group of people treasure on the old-days in Hong Kong. They collected and shared plenty of photo which about Hong Kong. Another evidence is film about the 60s' and 70s' of Hong Kong (the golden age). Although the days passed, films have drawn the people heart to the values, such as hardworking of workers and close relationship between neighbors that Hong Kong peoples once hold. People expressed their ambiguous feelings about how the new development in both economical and society has gradually demolishing some of the treasured values. In the overseas delegation to Germany, delegates visited engineering-related places. Apart from the distinguishable, nearly perfect in quality architects and technologies we spotted, we were also amazed that how the

Germans hold the same values as the Chinese. In Germany, a far more developed country which experienced two distortable world wars, have not forgot their past. Even if it was a sad history, they learned and also taught the descendants through the historical buildings, technical knowledge and brand that lasted for hundred years. The German have gone a step further to incorporated the old into the new other than keeping the old things. They recognize that the new things without old values cannot last long and old things will collapse without innovative modifications. We experienced that the German intelligent combinations of historic, nature and origin with modern development. It is important for us to learn how to adopt this blending ability to conserve our traditional and values worth buildings, culture and core values and to achieve successful steady growth in development and conservation of traditions like the Germans.

### Historic and Development

Similar to other European countries, Germany was once many different small countries. One powerful king decided to unite all the small countries. The culture and traditional of those small countries have been conserved though the buildings, music, paintings,

statues, or even food. On the very first day in Germany, we were already shocked by the beautiful and artistic Frankfurt Main Train Station. The outlook of the train station has not been changed since 1888 even though it had many renovations throughout the years. When you walked down the streets, buildings were not just the huge concrete blocks; the façades were full of details like the columns and the windows frames, for instance the Römerberg which rebuilt in the late 1980s. Just a few more blocks down, you would saw the high-rise buildings, such as the head quarters of European Central Bank, Deschutes Bank, and Commerzbank, hidden in between the historic buildings. In the large plaza of the city centre, the once town police station had been transformed into a café that was full of people. The Frankfurt Stock Exchange, Opera House and the Pedestrian Bridge over the main rivers are still the same in its outlook and still functioning as it was first built in the 1800s. As shown in the old photos of Frankfurt, nothing survived after the two world wars. Most of the buildings were rebuilt to mimic the old outlooks. In Munich, the admire to their conservation of historic building were re-enforced, especially when you saw the churches, St Maria

Plaza, and the city hall. The city was basically flat to the ground after the second World Wars. Yet the Munich City Government spent great deal of money in recovering the building back to its original look. The churches were rebuilt, the bell tower was functioning, the music dolls were circulating at the city hall. Not only is the government trying to reserve the old cultures, the two hundreds years old beer house, Augustiner Keller and Hofbrauhaus, were conservation their culture through the good food and good beer.

The history and culture has been conserved in the buildings we saw in Frankfurt and Munich, and yet the development was continuously growing (Frankfurt is the financial center of Europe similar to the financial role in Hong Kong). From this, we concluded that the "Origin" is a very important factor to them. However, in Hong Kong, the policy against the old and worth for conservable buildings were limited. The districts, such as Central and Yau Ma Tei, those once were full with artistic buildings had been transformed and filled in the high rise buildings. For the few buildings, like the High Court Building and the old Central police station in Central was just kept as it was like hundred years ago but they are not in-used.

The ability to bend the old and new does not solely exist in historic buildings. The Germans even spent efforts on retaining modern buildings with a worth. The major renovation of the Headquarters of Deutshce Bank is a great example to illustrate their ability and willingness to keep the origin. The fire safety regulations to building had been restricted especially after the 911 attacks in New York. The original design of the building fire safety system first built in the 1970s was no longer suitable for the latest regulation. The fire fighting system must be upgraded or the building had to be stopped in use. The management of the Bank decided in between upgraded or rebuild the whole building. In the end, they decided to upgrade the building. The idea of keeping the original appearance of the building was highly recommended by the managements of the bank. The expert who worked on the original facades but had retired was dug out by the builder to re-establish the formula that mixing the composition of the facades. After the upgrading,

people did not even notice that the building had been transformed into a total new building as the outlook was exactly the same as before.

The green chairs at the Stadium of Munich Olympic Park, demonstrated another case of retaining old outlooks that worth people to memorize. Stadium of Munich Olympic Park went through a major renovation, after the football team FC Bayern Munich moved to their new stadium in 2005. The seats were retained and re-installed into the stadium. The builder was surprised by observing the non-uniform of green colour of the seats. The long exposure of the sunlight had permanently dyed some zone before the renovation. The seats were re-installed randomly and resulted in a surprising picture with the different types of green seats in a same zone. The builder had considered to remove the faded out chairs but they thought that by keeping the different green seats would able to let the people to remember the long history and meaningful of the Olympia Game in 1972. They were there when you now visited the stadium.

The German does not just blindly develop their country, build new structures and forget what they really are and what they represents. As they are really pound of their achievements over the years, and also want to let others know that they have been achieved, many different methods they had tried to retain and pass-on to the next generation.

### Nature vs Development

The origin, as in what they are, is important values for the German. They also treasure where they come from and that is nature. As one of the most developed countries since the industrial revolution to the advance in weapon engineering to the post-war economic growth, they already learnt that the resource were limited and it was given by the nature. Therefore, it is important to establish an environment for remain sustainable nature and at the same time not preventing development. The government is educating the children the importance of protecting the environment since their primary school. The ideas of protecting the environment have planted in their mind set. On the other hand, the

government also set up guidelines and standards for the private sector to follow in making the environment sustainable. In fact, in Europe, standards regarding the performance of the product of other engineering system were issued by authorities which is based in Germany. The private sector would follow the standards due to the environmental protection ideas deeply planted in their mind and the fully developed market environment which encourages the private sectors to adopt the environmental measures.

The companies that we visited in Germany demonstrated how their adoption easily introduced the environmental measurements and implemented in their companies. The renovation project of Deutshce Bank in 2009 mentioned previously, did not simply upgraded their fire safety system as required by the fire safety regulations. Their management decided to "go green" during the renovation. They even have a goal to be the first European building gaining the LEED Platinum Rating. Apart from the natural ventilation, abandon use of the air-conditioning, use of renewable energy, and use of electrical car, the building had reused 80% of the material from the origin building during the renovation. The remaining material was manufactured within the local area to reduced carbon footprint by importing the building material from overseas. They encouraged low carbon footprint transportation method for employers to work, such as a large part of the original parking area was transformed into a bicycle parking and showering facilities were also added in the newly renovated building. The food provided in the new canteen was grown and collected from the farm nearby.

Commerzbank Tower, which was built in 1992, was the very first ecological skyscraper in Europe. The design integrated some, once the state of art, building services technologies, such as innovative façade and building system that uses natural ventilation, maintaining health and happiness for the users by daylighting office space and allowing them to enjoy the outdoors by operable windows and planted sky gardens; recycling grey water for cooling and sanitary purpose. Both of the green buildings are demonstrated how the German

companies adopting the most energy efficient building services installation. Yet the German had been strike for GREEN ENGINEERING along with growth in development since the 1970s. The 1972 Olympic Games was adopted the "GREEN Olympic Games". The design of the Olympic Park has three major design factors, rolling green land, a robust and user-oriented park that asked the user to "Please walk on the grass." The Olympic Village was a "City within a City" with green planting throughout, and included shopping facilities, school, kindergarten and cultural establishment. Transportation was put underground, separating it from paths for pedestrians and cyclists on the surface. Instead of the impression of driving on roads, car drivers experience the huge underground garage. The stadium, the swimming pool and the hall for indoor games were all built under the ground and left the relaxing landscape for the people to enjoy even after the Game. These 40 years after the game, the Olympic Park is still one of the most enjoyable places that the local would enjoy.

Despite the financial role of Frankfurt, it is actually a forest city. Over 50% of the municipal areas are covered by forest. The forest spread over 5000 hectares. Green Office of the City of Frankfurt is responsible to protect the forest. New trees have been planted and the old trees were removed for making places of other trees. To educate the public about conservation of the natural habitat through the understanding of the lift of a tree and the woodland wildlife community, the forestry and ecology information centre, Stadwaldhaus was built in 1995. The education centre promotes the government policy to growth with the nature into young children mindset.

The environmental protective mind set has brought a lot of controversial issue to the construction of the 3rd runway of the Frankfurt International

Airport. The environmental impact of the construction was concerned by the people living in the neighborhood. Therefore, in the consultation of the 4th runway of the Airport, the environmental impact had been addressed and citizens involvement has been integrated into the project. With the understanding from the citizens and the details environmental impact study, the 4th runway was completed successfully.

#### Less is more.

Germans are proud of their culture, origin and achievement. Instead of the having innovative ideas, very modernization inventions, the German have greater improvements. Yet the development aren't only adding on it can also be keeping the simplicity and effectiveness. It is back to the basic and the origin. The worthness of the products have been increased without adding extra unimportant things. Germans illustrates the idea of "Less is more"

Leica is one of the examples presenting the idea of "less is more". The design of Leica is back to basic, when digital was not born; auto-mode was not in the world. It is worked with the simplest, kept the highest quality, created a chance of taking the most artistic photo. A real photographer is not required the extra functions, they are redundant to them, or even hindered them from photographing. Herewith below discussion on camera functions between Leica and other brands, to show the "back-to-basic" attitude to photography, i.e. LESS is MORE.

The original intention of the Autofocus function aims to assist photographer to capture a clear crisp image. But step aside, blur is representing a kind of imagination indeed, autofocus impeded the expression. Leica designed manual focus only; this challenged the skills, focus required manual control and relied on eyes. On another words, it can manage

kaleidoscopic changes. Since blur can be utilized to perform an idea of perception with a shot, this could be freely controlled in manual mode; auto-mode limited the mobility. Other brands were usually installed both auto-mode and manual mode, for easier control to beginner, the auto-mode system depends on detection, which allow capture an instant with a faster focus but sometimes failed. It coped with different situation to get a crisp image.

Apart from the focus, lens is always pursued in sharpness. There are prime lens (lens with fixed focal length) and zoom lens in the market. They have their merits. Prime lenses are known for being high quality and considered to be capable of creating a crisp, clear and precise image. It could take photo with a higher speed and able to shoot in low-light situation without a need for a flash. Moreover, the fewer lens elements along with a reduced tendency for contrast-robbing flare contributes to the sharpness, as well as the lighter weight. A fast lens also allows excellent subject isolation by blurring the distracting background. This results in a master piece. The merely disadvantage of prime lens forced photographer moving around to get the best shot; this is also an advantage on effort to an artistic photo, by trials on different angles. Zoom lenses reduced the sharpness and sucked the creativity of photographer, in return of flexibility and convenience. As a profession, Leica produced prime lenses only, she gave up the flexibility and convenience to users and abstained from the lower quality of image. Yet, she didn't lose her market. This is a myth of Leica.

Parallel with the sharpness of lens, stability on taking a photo is an important issue. Under a low-light situation, jiggling is always appeared due to tremor. Image stability function aided the situation. It could be found in most of the cameras, except Leica. Image stability system is not

installed in Leica cameras. They treated them as redundancies. In their point of view, an extraordinary high quality lens solved the problem; image stability system degraded the image quality. As discussed in the section of Quality, Leica's lens allowed 99% light passing through and penetrated extra light to sensor. Hence excluding the development of stabilizer system, such as IS or VR system, this is the simplest way.

Besides image stability system, most of the brands hunted for the latest technologies, emphasizing the highest resolution, largest aperture and seeking for the highest ISO. There is nothing to do with Leica at the same moment. Leica is not concerned with technologies, she focused on human comfort. It invested to make lens components with high contrast and more brilliant. And result in a more precise, crisper and clearer photo than that made

by technologies. This proved the simplest is the best.

To be attractive, some cameras dressed with aesthetic appearance, apart from the technologies installed. Leica is little to do with the outward appearance. This is not their concern; this is redundant to them. The worthiest things worked with the simplest and the least. This is LEICA.

"Less is more" is not merely the name for German products, but also the buildings. New Swan Castle, which named Neuschwanstein, is the home to the Ludwig II who died in 1886. The castle was built just for the king. The construction costs of Neuschwanstein were more than 6 million marks. The administrators of Ludwig's estate managed to balance the construction debts by 1899 as the castle was opened to paying visitors 6 weeks after the king died. To guarantee a smooth

course of visits, some rooms and the court buildings were finished first. Entries fees for visiting the Neuschwanstein was a stable source of revenue and the single largest income source earned by the Bavarian royal family. Even though the castle managements can afford to continue the works and complete the construction of the castle, the castle has never been completed. One of the reasons is the incompleteness because the castle would never be able to finish because the high satisfactory level of the builder, designer and the owner Ludwig II would remain a secret since his die. Without able to achieve the original goal or designed plan. The management of the castle thought that keep its original looks since 1886 would be a better idea for keeping the Neuschwanstein. The incompleteness of the castle makes it so special that even more visitors to come.

## Reference

- Payn, H. (1888). The Merchandise marks act 1887: with special reference to the importation sections and the customs regulations and orders made thereunder. United Kingdom.
- Fraport AG. (2012). Airport CDM @ FRA. Retrieved June 9, 2012, from <http://www.cdm.frankfurt-airport.com/content/fraport-cdm/en.html>
- V&A Museum. (n.d.). Stacking chair - Bofinger chair; B1171; Bofinger chair. Retrieved June 9, 2012, from V&A Collections : <http://collections.vam.ac.uk/item/O372071/bofinger-chair-b1171-bofinger-chair-stacking-chair-rudolf-baresel-bofinger/>
- Department of Justice. Cap 47 APPRENTICESHIP ORDINANCE.
- Organisationskomitee für die Spiele der XX Olympiade München 1972 e. V. (1972). Die Spiele - The official report of the Organizing Committee for the Games of the XXth Olympiad Munich (Vol. 2). proSportGmbH & Co. KG.
- Energizing Kowloon East Office. (n.d.). Key Themes. Retrieved June 9, 2013, from Energizing Kowloon East: [http://www.ekeo.gov.hk/en/about\\_ekeo/ekeo.html](http://www.ekeo.gov.hk/en/about_ekeo/ekeo.html)
- Energizing Kowloon East Office. (n.d.). Conceptual Master Plan 2.0. Retrieved June 9, 2013, from Energizing Kowloon East: [http://www.ekeo.gov.hk/en/conceptual\\_master\\_plan/master\\_plan\\_2/index.html](http://www.ekeo.gov.hk/en/conceptual_master_plan/master_plan_2/index.html)
- Highways Department. (n.d.). PROJECT BACKGROUND. Retrieved June 9, 2013, from The Central – Wan Chai Bypass and Island Eastern Corridor Link (CWB): <http://www.cwb-hyd.hk/introduction.html>
- Calfa, J. (2010, April 22). What is quality? Retrieved June 9, 2013, from Let's talk about Quality : <http://onquality.blogspot.hk/2010/04/what-is-quality.html>
- Erdinger Weissbräu. (n.d.). Erdinger weissbier. Retrieved June 9, 2013, from Erdinger weissbier: <http://www.erdinger.de/en/erdinger-weissbier-company/brewery.html>
- Green, R. A. (n.d.). BMW Drives Safety with Quality. Retrieved June 9, 2013, from Quality Digest: <http://www.qualitydigest.com/aug01/html/bmw.html>
- Deaton, J. P. (n.d.). How Automotive Quality Control Works. Retrieved June 9, 2013, from How Stuff Works: <http://auto.howstuffworks.com/under-the-hood/auto-manufacturing/automotive-quality-control.htm>
- Hardy, F. (1993). GERMANY'S PURITY LAW. Retrieved June 9, 2013, from <http://brewery.org/>: <http://brewery.org/library/ReinHeit.html>
- Leica Lenses [Motion Picture].
- Pepchinski, M. (1998). With its naturally ventilated skin and gardens in the sky. *Architectural Record*, 186 (1), 68.
- Davies, C., & Lambot, I. (1997). Commerzbank Frankfurt: Prototype for an Ecological High-rise. Birkhauser Verlag AG.
- Foster, N. (1997). Commerzbank Headquarters. *GA Document* (53), 52-61.
- Davey, P. (1997). High Expectations. *Architectural Review*, CCI (1205), 26-39.
- Deutsche Bank. (2010). Empowering Communities in Asia. Corporate Social Responsibility Report.

# Conclusion

Germany was longed for her very innovative design and persevering a high quality standards in every aspects, from engineering products to enjoyment of life. Since the industrial revolution, engineering in Germany was seen by others a leader both in technology as well as a symbol of reliable quality. It is therefore a valuable place for us engineers to visit and experience and understand the secrets behind success of Germany.

We started off planning the 7-day visit by dividing the 16 delegates into three groups, each group with respective tasks: Driving the Next Delegation to study the World's Top Automobile Industry and Manufacturing Process, as well as its management; Fitness for Use to study the reason that leads to the high quality product from Germany, and Development with Conservation, which focused on sustainable development of a city as well as preservation of heritage of long history.

After the delegation, our team has identified several areas of insights, which can mainly be categorized into the following:

Being the leader in the manufacturing industry, both heavy and light, German are very eager and spend every effort to produce a quality production line that leads to a quality product. Both the Audi and BMW factory plants had shown our delegates the extreme of a fully automated manufacturing process with high precision tools to produce a high precision product. However, still there are a number of processes that need human's sensation and instinct to produce a "quality" product that fit users' requirement and ergonomics. This was also seen at Leica factory in which the famous Camera and Optics maker still insists to include human to play a major part in their production line.

The German culture was also brought to our eye during our delegation. This was associated with the accreditation of LEED Platinum towards the Deutsche bank in Frankfurt. Through our visit at the bank, we noted that not only the highly automated building management system that leads to the award, but the office culture and the persistence of staff to strictly follow the office regulations that outcomes the savings in energy and resource consumption. The Office Culture, in particular the concept of "hot-desking", had presented to our delegates the German's pragmatism.

Germans' persevere were also seen in their pursuit of "quality of life". Through our visit to the German's top beer producer, Erdinger, in which their production line follows strictly to the "Purity Law"; we saw their believe in crafting a beer with originality will give to their customers good quality, thus satisfaction.

Speaking of originality, the German are very eager to preserve their origin and their classics design. With the opportunity to "rebuild" the city after the WWII, the Frankfurt government still persists to reinstate the original cityscape, with minor add-on such as the Deutsche Bank and Commerze Bank. This leads to a good and fresh mixture of new and old buildings in one city of Frankfurt. On the other hand, recent cases in Hong Kong had

shown to us the room for improvement of developing a more comprehensive policy on heritage preservation and the pursuit to preserve heritage in Hong Kong shall be reviewed. The staunch of German are also seen in the preservation of the Neuschwanstein, which the original outlook since 1886 was properly preserved.

Despite the fruitful visits, the delegates were also provided a chance to meet the local professionals (VDMA and IMechE German Branch), both exchange session surely gives a more in-depth insight in German's engineering culture as well as working culture in Germany.

On the other hand, to understand whether those insights from Germany are applicable to Hong Kong, a series of local seminars and visits were organized. Through such events and activities, our delegates gain knowledge of the current situation in Hong Kong, and together with the learned outcome from Germany, we are able to combine our findings which would be shared among the delegation team as well as other members of the YMC to give our fellow members an idea to improve the engineering profession.

# Profile of Advisors



Ir Prof. CHOY, Kin Kuen  
The President, the HKIE

Ir Prof. CHOY was graduated in 1975 at the Hong Kong Polytechnic University with an Associateship in Structural Engineering. After graduation, Ir Prof. CHOY worked for 2 years as a site engineer for Hip Hing Construction Co. Limited at the construction site of the New World Centre in Tsim Sha Tsui, Kowloon, Hong Kong. He then joined the Government in 1977, initially in the Architectural Office of the then Public Works Department and was later transferred to the then Buildings Ordinance Office in 1981. He has extensive experience in designing, planning, construction and control of building and civil engineering projects. Ir Prof. CHOY is a Chartered Civil and Structural Engineer, a Fellow of the Institution of Structural Engineers and the Hong Kong Institution of Engineers, a Registered Structural Engineer under the Buildings Ordinance and a Class 1 Registered Structural Engineer of the People's Republic of China. He has been appointed as an Adjunct Professor of the University of Hong Kong and the Hong Kong Polytechnic University since 2004. He retired from the HKSAR Government in 2011. Before then he was an Assistant Director of the Buildings Department. He is now serving the Hong Kong Institution of Engineers as the President and the Professional Green Building Council as the Chairman.



Ir CHAN, Fuk Cheung  
Immediate Past President, the HKIE

Ir F C CHAN received his education in Hong Kong and United Kingdom. He was a graduate with first class Honours from the University of Hong Kong in Electrical Engineering. He carried out research in power system protection and obtained his Doctor of Philosophy from Imperial College, University of London. Ir CHAN has extensive experiences in power systems specializing in power systems protection, distribution automation, substation design and construction, lighting applications and energy services. He gave lectures and published over 50 papers to share his experience. He is active in various learned society activities in Hong Kong. He is currently the Immediate President of the Hong Kong Institution of Engineers. His current focus includes Smart Grid, End-user Behaviour and Fault Tolerance System. He is also keen on the promotion of engineer profession and the development of young engineers as well as the engineering and technology education in secondary schools in Hong Kong.



Ir Raymond K S CHAN J.P.  
Senior Vice President, the HKIE

Ir Raymond CHAN Kin Sek, aged 61, was the Head of the Geotechnical Engineering Office of the Hong Kong Special Administrative Region of China between 1998-2011 before his retirement, responsible for a wide spectrum of geotechnical functions including the management of the Hong Kong slope safety system to mitigate the risks of landslides and geohazards in Hong Kong. Ir CHAN has over 35-year experience in civil and geotechnical engineering. He has published over twenty five key-note lectures and the state-of-the-art papers on landslide risk management and geotechnical engineering practice in Hong Kong. Ir CHAN had served on the Accreditation Advisory Board of the Industry Department and various advisory boards of the Engineering Departments of the University of Hong Kong, the Hong Kong University of Science and Technology and the Hong Kong Polytechnic University. In 1999-2002, Ir CHAN was appointed Adjunct Professor and the Chairman of the Steering Committee of the Jockey Club Research and Information Centre for Landslip Prevention and Land Development of the University of Hong Kong. He was a member of the Scientific Committee of the international Integrated Research on Disaster Risk (IRDR) Program between 2009-2012. He is also an advisor to IRDR(China). Ir CHAN has been an official Justice of Peace between 1997-2012. Currently he is the Guest Professor at the Hong Kong University of Science and Technology and the Senior Vice President of the Hong Kong Institution of Engineers. In December, 2012, he was conferred the Bronze Bauhinia Star (BBS) for his dedicated and meritorious service to the Government for over 34 years, particularly in significantly enhancing slope safety in Hong Kong.



Ir Victor C K CHEUNG  
Vice President, the HKIE

Ir CHEUNG is a Director of J. Roger Preston Limited, a leading Building Services Consultancy in the South East Asia region. He is a Registered Professional Engineer in Building Services and Fire disciplines. Ir CHEUNG graduated with first class honours in Environmental Engineering from the South Bank Polytechnic, UK and obtained an MSc in Energy Engineering from the Surrey University, UK. He has over 36 years of experience in the field of electrical & mechanical and building services engineering and responsible for a wide range of building and infrastructure projects in the region. Ir CHEUNG is active in community services and has served on various task forces, boards and committees for government, NGO's and professional bodies. He is currently the Vice President of the Hong Kong Institution of Engineers.



Ir CHAN, Chi Chiu J.P.  
Vice President, the HKIE

Ir CHAN is a civil engineer by profession. After graduation from the University of Hong Kong in 1976, he worked in the then Highways Office and Drainage Division of the HKSARG for two years, and then continued his engineering career in the Water Supplies Department. He has been involved in the planning, design and construction of new waterworks projects, operation and maintenance of the water supply and distribution system, and the provision of customer services. In 2008, he was transferred to the Civil Engineering and Development Department, taking charge of the planning, management and implementation of development and infrastructure projects in the North and West New Territories. In September 2010, he took up the post of Director of Drainage Services, overseeing all aspects of wastewater and stormwater drainage services, covering capital works for new infrastructure, improvement works to existing assets, operation and maintenance of existing systems and facilities, and collection of sewage services charges. He is currently the Vice President of the Hong Kong Institution of Engineers.



Ir Dr. Otto L T POON, BBS, OBE  
Past President, the HKIE



Ir Edmund K H LEUNG, SBS, OBE J.P.  
Past President, the HKIE

Ir Dr. POON is a Chartered Engineer with 50 years' E&M engineering experience and the founder of Analogue Group of Companies. He had participated in public services both to the community and the engineering profession which included, among others, Advisory Council on the Environment, Energy Advisory Committee, Solicitors Disciplinary Tribunal Panel, Council for Sustainable Development, Trustee Board of Institution of Mechanical Engineers, UK, Chinese Mechanical Engineering Society, PRC, as well as being the President of the Hong Kong Institution of Engineers (1998-99), President of Hong Kong Association of Energy Engineers (2004-08), President of Association of Energy Engineers, Hong Kong Chapter (2006-09) and Chairman of Hong Kong Climate Change Forum (2010-11). He now serves, among others, as the Advisor to Bauhinia Foundation Research Centre, Member of School Advisory Committee of School of Energy and Environment of City University of Hong Kong, and President of the Hong Kong Federation of Electrical and Mechanical Contractors. He was awarded OBE and BBS. He was conferred the University Fellowship by The Hong Kong Polytechnic University in 2007, Honorary Degree of Doctor of Technology (Hon DTech) by Coventry University, UK in 2011, and Honorary Fellowship by University of Central Lancashire, UK in 2012. He was also elected as an Outstanding Hong Kong Polytechnic University Alumni, an Outstanding IMechE Branch Member of the Year (2003-04) and an Honorary Member by The Chinese Mechanical Engineering Society. He was inducted into the Hall of Fame of the Hong Kong Institution of Engineers in 2010.

Edmund Leung is a professional engineer with broad-based experience covering power, manufacturing and construction industries. Graduated from the University of Hong Kong in Mechanical Engineering, he worked for the power utilities, a manufacturer, contracting and consulting organizations and helped to plan, design and construct many infrastructure projects including railways and tunnels and many complex building projects. He retired from Hyder Consulting Limited in 2003 and served as part-time advisors and independent non-executive directors for various organizations. In 2009 he re-embarked on full time work when he was appointed as the Managing Director of Hsin Chong Construction Group Limited. He retired again in 2012 but was subsequently appointed Chief Officer of Kowloon-Canton Railway Corporation in 2013. He has been active in public services, and has extensive involvements in engineering and education sectors. For engineering sector, he had served as the President of The Hong Kong Institution of Engineers, Chairman of the Hong Kong Branch and Council Member of the Institution of Mechanical Engineers in UK. For education sector, he had served as Council Member and then Vice Chairman of the Hong Kong Council for Academic Accreditation, Council Member of Lingnan University, and Chairman of the Advisory Board for Vocational Education of the Vocational Training Council. He is an Honorary Fellow of the University of Hong Kong and of Lingnan University. He is presently the Chairman of the Process Review Panel for the Financial Reporting Council and Deputy Chairman of The Hong Kong Institute of Directors. He had recently

completed his terms as Chairman of the Energy Advisory Committee, Board Member of the Airport Authority Hong Kong, and Member of the Town Planning Board. He was conferred an OBE in 1996, appointed Justice of Peace in 1997, and awarded a Silver Bauhinia Star in 2009.



Ir CHAN, Siu Tack  
Chairman, the HKIE -  
Continuing Professional  
Development Committee

Ir CHAN is an Assistant Director (Estate Management) of the Hong Kong Housing Department, HKSAR Government. He graduated from the University of Hong Kong in 1977 with a degree in civil engineering, and obtained a MBA in 1986 from the Chinese University of Hong Kong. He worked in civil engineering consultancy for seven years before joining the Hong Kong Housing Department in 1984. He has extensive experience in the planning, design, project management and contract administration for the construction of public housing developments, and estate management and maintenance of public housing estates. He is a Fellow of the Hong Kong Institution of Engineers and the Institution of Structural Engineers. He participates actively in various professional institution's activities. He has been the Council Member of the Structural Engineers and the Chairman of the HKIE Structural Division. He is currently the Chairman of the HKIE-Continuing Professional Development Committee, Council Member of the HKIE, and Deputy Chairman of the HKIE Structural Discipline Advisory Panel and the HKIE Building Discipline Advisory Panel.



Ir Gary C W KO  
Chairman, the HKIE -  
Professional Assessment  
Committee

Ir KO is an electrical engineer who started as a Graduate Trainee in CLP Power Hong Kong Limited in 1980. After 11 years with the power utility, he moved to the contracting business by joining Kum Shing Group as a Contracts Manager. Initially responsible for electric cable trenching business, he advanced with the growth of the Group and is currently the Executive Director and Chief Operating Officer to oversee multi-disciplined engineering contracts. His past service in the HKIE includes Council Member, Chairman of the Electrical Division and Chairman of the Continuing Professional Development Committee. Currently, he is the Deputy Chairman of Gas & Energy Division and Chairman of the Professional Assessment Committee. In addition to the service to the HKIE, he is an Honorary Advisor of the Hong Kong & Kowloon Electrical Engineering & Appliances Trade Workers Union, Member of the Engineers Registration Board, Member of the Election Committee of the Chief Executive, Executive Member of Munsang College School Sponsoring Body and Vice Chairman of Admissions, Budgets and Allocations Committee of the Community Chest.

Candy obtained her Bachelor of Engineering in Building Engineering (Building Services Engineering) from the City University of Hong Kong. Upon her graduation, she joined Parsons Brinckerhoff (Asia) Ltd. and is currently working as a Senior Engineer in the company. Candy didn't suspend learning and is pursuing a Master of Science in Fire and Safety Engineering at the Hong Kong Polytechnic University recently. She joined the HKIE-YMC as a helper in 2009 and is now a Committee Member.

Iman obtained her Bachelor Degree of Applied Science in Civil Engineering and LLB degree from the University of British Columbia, Canada and the University of London respectively, and is now a MBA candidate at the Hong Kong University of Science and Technology. She acquired chartership recognized by professional institutes of Australia and Hong Kong. She is currently working as a Contract Advisor in Civil Engineering and Development Department of the HKSAR Government. She joined the HKIE-YMC as a helper in 2006. She is currently the HKIE-YMC's Chairman.

Annie graduated with a Bachelor Degree in Mechanical Engineering and obtained a Master degree in Building Services Engineering from the Hong Kong Polytechnic University. She holds the professional memberships with HKIE and IMechE and currently working as a Mechanical Engineer in the Water Supplies Department, HKSAR Government. Annie has joined the HKIE-YMC in Session 2006/07 as a helper and now she is Deputy Chairman in current session.

Ambrose obtained his Master Degree in Mechanical Engineering from Imperial College London; and a Master Degree in Environmental Engineering from the University of Hong Kong. He is currently working as an enforcement officer in the Environmental Protection Department, HKSAR Government. As a Committee Member in the HKIE-YMC, Ambrose participates actively in organising events and functions for promoting young engineers in Hong Kong.

Michael is a final-year student pursuing his Dual Degree in Mechanical Engineering and Business Management at the Hong Kong University of Science and Technology. He is currently working at MTR as a student intern to complete his final year project. Throughout his study, Michael also worked at Swire Properties Ltd. and HK LSG Sky Chefs as a summer intern in order to consolidate his engineering knowledge and experience.

Mark obtained his Bachelor Degree in Civil Engineering from the Hong Kong Polytechnic University. He is working as a Graduate Engineer (Civil) at AECOM Asia Company Ltd. He works in the Ports and Marine team in the transportation business line of the company. He is responsible for seawall designs, marine structure designs and checking of existing marine structures.

Zara obtained her Bachelor's Degree in Civil Engineering from The Hong Kong Polytechnic University and completed two exchange programmes at Imperial College London and Shanghai Jiaotong University. She is now working as an Assistant Engineer at the Highways & Transportation Infrastructure Department of Atkins China Ltd. She has been actively involving in and contributing herself to the HKIE-YMC and is now a helper of the Committee.

Eric obtained his Bachelor Degree of Mechanical Engineering from the University of Hong Kong in 2010. He is now an Assistant Engineer in the Hong Kong Electric. Knowing that social networking is an essential element to a prosperous career, Eric has been serving the Young Members Committee since graduation. In this session, he serves as an Event Coordinator focusing events related to the Regional Cooperation Plan.

Ir Iman W M LAI  
Delegation Chairman  
& Public Relation  
Officer

Ir Annie O Y CHAN  
Delegation Manager

Mr. Ambrose H T  
CHEN  
Deputy Delegation  
Manager

Ms. Candy M Y  
FUNG  
Deputy Delegation  
Manager

Mr. Michael W K HO  
Editor

Mr. Mark K H CHAN  
Editor

Ms. Zara S Y TAM  
Secretary

Mr. Eric K C HO  
Treasurer

# Profile of Delegates

Alex obtained his first Bachelor Degree in Mechanical Engineering from the University of Hong Kong in 2010. He is currently pursuing his second Bachelor Degree in Laws (LLB) at External System of University of London as a part-time student for enriching his legal knowledge. He has joined the Department of Environmental Engineering in ATAL Engineering Ltd. as a Graduate Engineer under the HKIE Graduate Scheme "A" Training upon his graduation of first bachelor degree. He is now working as an Engineer in the same Department after the completion of Scheme "A" Training. He involves in engineering analysis, design submissions, and different kinds of development in Hong Kong especially the water and sewerage treatment.

Mandy obtained her Bachelor Degree in Building Engineering (Building Services Engineering) from City University of Hong Kong. Upon her graduation, she joined Atkins China Limited as a graduate engineer responsible for designing various tunnel ventilation systems in Hong Kong and Saudi Arabia. Mandy joined the family of HKIE since 2009 as committee member of HKIE-Student Chapter (CityU) and was elected as a Chairlady in 2010. Now, she is actively contributing herself to the HKIE-YMC as helper.

Felicia graduated from University of California, Berkeley with a Bachelor of Science in Material Science and Mechanical Engineering in 2009. After graduation, she joined Electrical and Mechanical Services Department (EMSD) of the HKSAR Government. She is now pursuing a Master of Science in Building Services Engineering from the University of Hong Kong. Currently, she works as an Assistant Engineer who is responsible for design and project management of several building services projects.

Bill obtained his BEng and MPhil in Civil and Structural in the Hong Kong University of Science and Technology (HKUST). He accomplished his undergraduate thesis in Technical University of Denmark and master thesis in HKUST. His research has been published in American Society of Civil Engineers (ASCE), Springer Engineering and International Union of Laboratories and Experts in Construction Materials, Systems and Structures (RILEM). Currently, he is working as an Assistant Structural Engineer in SiuYin Wai & Associates Ltd. As one of the protégés of the HKIE President's Protégé Scheme 2012/2013 and helper of HKIE YMC, he is wishing to promote more of Engineering Profession to the Society.

Fiona obtained her Master of Science Degree in Environmental Engineering from the Hong Kong University of Science and Technology. After graduation, she joined Water and Urban Development Department in AECOM Asia Company Ltd. She is currently participating in different projects of municipal wastewater treatment plant, including process design, technical specifications preparation and Environmental Impact Assessment.

Sophia obtained her Bachelor Degree in Building Services Engineering from the Hong Kong Polytechnic University and is subsequently pursuing a Master Degree in Fire and Safety Engineering. She is working as an Assistant Mechanical Engineer in Aurecon Hong Kong Ltd. and is responsible for support works of HVAC installation system and Fire services installation Design.

Cherie obtained her Bachelor Degree of Engineering in Civil Engineering from the Hong Kong Polytechnic University. Upon her graduation, she joined Gammon Construction Limited as an Assistant Engineer. As a part of her training towards becoming a professional Civil Engineer, Cherie has been participated in different projects of tendering. She is currently responsible for site operation works and achievement of construction programme.

Lisa obtained her Bachelor Degree in Water Supply and Sewage Engineering, and her Master Degree in Environmental Engineering from Tongji University and Hong Kong University of Science and Technology respectively. She joined Water and Urban Development Department of AECOM Asia Company Limited in 2010 upon her graduation, and has been involved in a variety of engineering projects of sewage treatment, odour treatment and waterworks improvement in Hong Kong and overseas. She is currently working as an Assistant Resident Engineer for upgrading of Pillar Point Sewage Treatment Works under Drainage Services Department's project.

Mr. Alex C Y LOK  
Overseas Liaison  
Officer

Ms. Mandy S M  
WONG  
Logistics Officer

Ms. Felicia Y N  
LEUNG  
Logistics Officer

Mr. Bill Q X JIN  
Overseas Liaison  
Officer

Ms. Fiona Q R LIU  
Local Liaison Officer

Ms. Sophia T C  
WONG  
Publication Officer

Ms. Cherie W Y TAM  
Local Liaison Officer

Ms. Lisa L S  
KUANG  
Publication Officer

# Messages from Delegates

This is my 2nd time to participate in the delegation, still it gave me freshness all the time as I expected !! Same as last delegation, I met and worked with new friends and through the process, we experience conscience, enthusiasm among us. Different from last time, we experienced the very different attitude and working culture that definitely shocked our delegates. I am sure all delegates were benefited and take away something from this delegation.

To conclude this delegation, I would like to quote from the slogan of Frankfurt Airport: we ARRIVE Germany, MEET together to organise this delegation and we DEPART to spread what we learnt to make engineering a better profession!

- Ambrose

"Quality!" is the one of thing that you would think of when talking about Germany"Quality!" is the one of thing that you would think of when talking about German.. To me, this word becomes the only adjective describing German after the OD. We visited different engineering venues and discovered that the Germans never put quality below anything. No matter if those are the Leica perfect camera lenses, to the fault-less of BMW and AUDI cars, to the eco-friendly Deutsche Bank Headquarters. Instead of the cost minimizing and profit maximizing business strategies that most companies pick, Germany companies focus on achieving better in quality. Yet achievements are not only in high-tech level, Germans also give efforts on building a more sustainable world for the descendants. Their efforts and contributions on balancing of development growth and substantiality for the environment are the major observation I had. I shall use what I saw, experienced and learnt from the trip in my work, especially engineering the society sustainably.

- Felicia

Frankfurt and Munich are the prominent cities in Germany and among in the worldwide. In this Delegation, I could see the planning and the efforts made by governmental authorities, professional institutions, and enterprises to improve the city's quality of living and make them green through the works by engineering. I could also see the latest engineering practice in the plant visits. I have made friends with a group of brilliant and young engineers of various disciplines. I have truly had a very fruitful journey to Germany.

- Alex





This is the first time I've been to Germany. The two cities, Munich and Frankfurt, were profoundly impressed me. Regardless of ornaments, buildings or even a signage, they were rational, functional and minimalistic. Another surprise for me was the Germans, met either at the technical forums or in souvenir shops, they were friendly and enthusiastic, but they are still oriented themselves on the norms of "precision". Precision was being the cultural roots of Germans and fed the industries, the sites we visited illustrated. Either the Leica factory or banks, they are designed precisely. All these enriched my cognition and let me introspect the situation in Hong Kong. We have to and, I believe, we can emulate the Germans.

Last but not least, please allow me to take this opportunity for sending my gratitude to all of our delegates. This delegation cannot be success without any of you.

- Candy

Germany is highly recognized as one of the places in the world with advanced technology. This delegation not only widens my exposure in technology in precision control, but also gains knowledge on green features of buildings, providing various perspectives of project implementation in a sustainable development way including social, economical and environmental. I also met new friends overseas. Are you ready for joining the Overseas Delegation?

- Iman

Having explored a technologically advanced country, Germany, I am able to widen my engineering exposure concerning on latest technology developments in precision manufacturing, green buildings as well as automobile industry. Through a series of seminars in Hong Kong and day-to-day visits in Germany, we realized that some green concepts in Germany, such as "Hot desking", are also applicable in Hong Kong. All in all, this delegation provides opportunities for us to review the current development in Hong Kong and contribute to a better Hong Kong in terms of technology. It is for sure an invaluable, fruitful experience and definitely an unforgettable part of my life!

- Sophia

2 cities, 7 days with other 15 delegates brought me not only an unforgettable trip but also an invaluable personal learning and growth experience. It broadened my engineering perspectives on green building, precision engineering and automobile technologies, and cultivated my on-the-ground competency to identify and resolve problems through various activities, including preliminary surveys, site visits, and engagement in group work. Apart from engineering achievements, the German feature of being diligent, faithful and obeying discipline also impressed me so much. Thanks to advisors for precious suggestions and other delegates for multi-disciplinary approaches sharing during the journey.

- Fiona



It is my first time been to Germany and I had a great time in there. During these 7-day-trip, we visited quite a few valuable locations and spots, for instance, design and manufacturing studio of camera company – LEICA; production lines of automobiles – Audi and BMW; green architecture – Deutsche Bank and Commerzbank; works of the god – Stadtwaldhaus and so on. They are unique as well as memorable and I learnt a lot through the visits.

Moreover, I was amazed by not only their high technologies of engineering of German, but also their attitude towards their profession – Desire and Focus. They pursue the goal of better instead of only staying at the “good” standard; they focus on their techniques so that they can do precisely. All factors count and make the industry of Germany outstanding in the world. The trip really inspires me and lights up my heart to be a professional engineer.

I would conclude it is a spiritual journey and much more than a delegation. It is an inspiring and unforgettable experience that I haven’t got in my life.

- Mandy

As a mechanical engineer, I enjoy to visit an engineering leading country - Germany. It is a memorable experience for me to join with 15 young engineers as well as our advisors in the Germany delegation. During the one week trip, I learnt the latest development on precision and green technologies. In addition to technological aspect, I appreciate German engineers’ serious attitude on their job and their discipline. Before the trip, some advisors remind us be on time for each visits as German is always very punctual. It’s true!

- Annie

It's true!

# Are you ready for joining the Overseas Delegation Germany?



This is the second time I joined the YMC Overseas Delegation. Two years back I was with the UK Delegation and I enjoyed it very much. So I grasped the opportunity again this year to embark for another amazing destination.

It is undoubtedly a special experience to have visited various engineering as well as cultural wonders, especially the production plant tour at the Leica Camera, StadtWaldHaus, Olympiapark München and the several churches in Munich. No matter it is product design, sustainable development, infrastructure planning or restoration of historic architecture, they all truly reflect the highly acclaimed German traits – innovative mindset, precision and attention to great details.

I am deeply impressed by the Germans’ determination and vision even many decades ago. Naturally, I believe it is worthwhile to revisit Germany to learn from their merits on another opportunity.

- Zara

Although YMC is nothing new to me, this is the first time for me to join the Delegation.

Together with 15 other delegates, I struggled whether I have made a correct choice of joining this delegation with theme mainly related to Mechanical Engineering, while Civil Engineering is my discipline.

Yet, after the 7-day delegation trip, I came back with no regret but full contented.

Indeed, apart from the world-class mechanics in Germany, she possesses fascinating identities in civil field, which could be showcased by various green buildings as well as green initiatives. These all could be discovered during our visits to Commerzbank, Olympiapark as well as the Frankfurt Airport.

- Cherie

I have long been looking forward to visiting Germany. It is a great country for young engineers to study and be inspired. It is also a dream place for all car fans like me. No doubt there are lots of famous automobile manufacturers in Germany, however I discovered car is not the only masterpiece can tug at my heart string after the Delegation. I will never forget the momentum of the Neuschwanstein castle, the enthusiastic German in restaurants and the robots in AUDI and BMW plants. They can never be fully interpreted by videos or photos but only be felt and remembered by heart.

It was my first time to be the delegate of HKIE YMC Oversea Delegation. It was challenging but worth it. Started from last year, we worked closely to perfect this delegation and the result was gorgeous! It will become my life-long memory.

- Michael

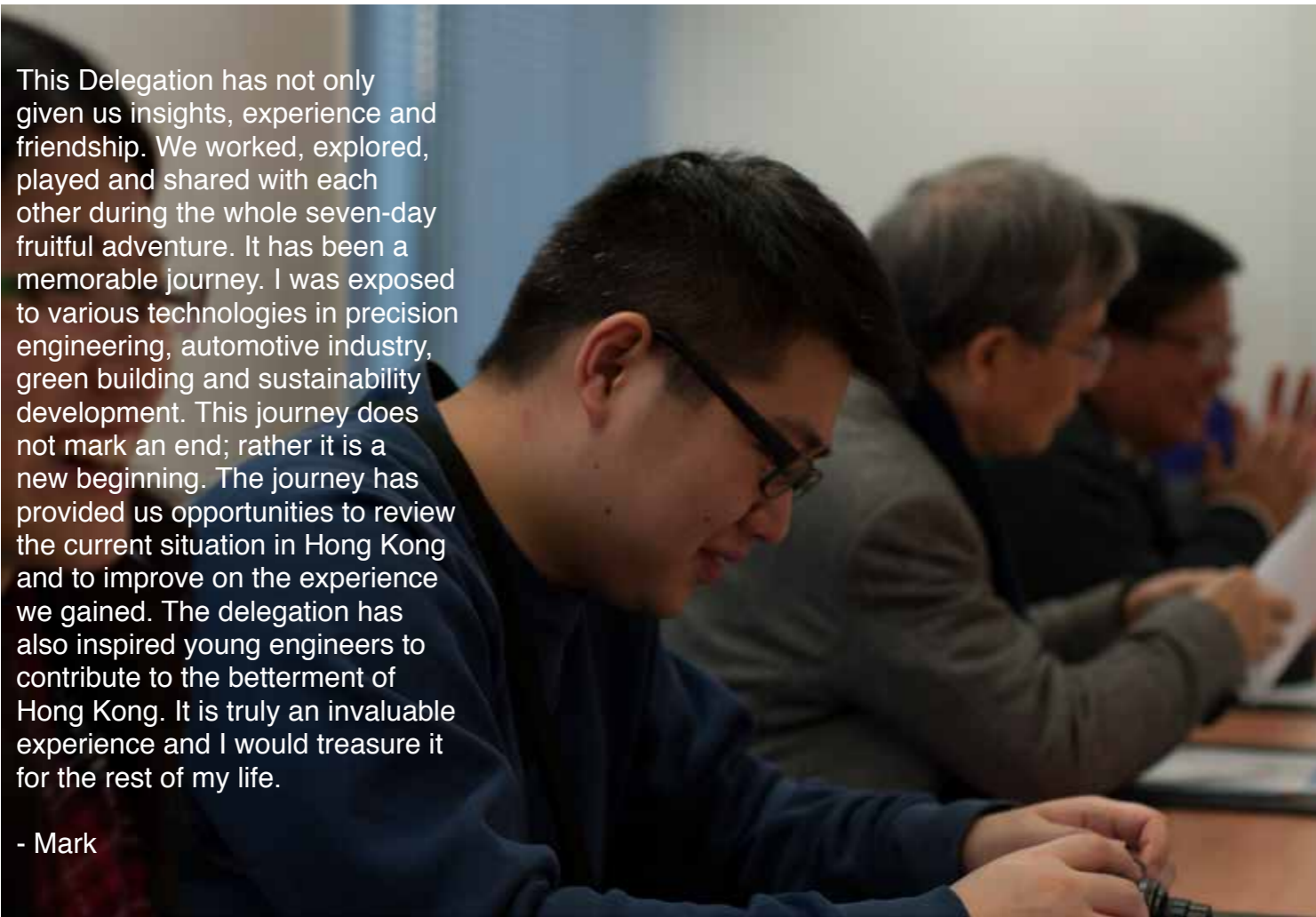
As a mechanical engineer, it was my great pleasure to find myself in this consortium of delegation to Germany. Germany is well-known for her expertise in engineering, specialized in precision field. By appreciating the above through visiting famous sites like the Audi Production Line, or indulging in Germany's Beer Culture during tour guide in Erdinger Brewery, the trip could simply be concluded with two words - remarkable and unforgettable. Though this is the first time for me to join the YMC Delegation, I am pretty sure I will leave my footprints over other parts of the planet during another Delegation trip.

- Eric

Made in Germany - a synonym for QUALITY. As a young engineer, I have long been attracted by Germany products for its numerous state-of-the-art design and visions behind. Through Leica's recipe in quality craftsmanship of lens making; Audi's combination of precision and flexibility in automated vehicle assembly line, this delegation has indeed exploded my excitement to learn the Deutsch passion of excellence.

I am also surprised to gain sight at the German extension of quality-driven attitude to their daily living - by creating smart control systems in the office and by balancing urban development and tradition preservation. In my future engineering career, I shall always keep in mind that nothing shall override QUALITY!

- Lisa



This Delegation has not only given us insights, experience and friendship. We worked, explored, played and shared with each other during the whole seven-day fruitful adventure. It has been a memorable journey. I was exposed to various technologies in precision engineering, automotive industry, green building and sustainability development. This journey does not mark an end; rather it is a new beginning. The journey has provided us opportunities to review the current situation in Hong Kong and to improve on the experience we gained. The delegation has also inspired young engineers to contribute to the betterment of Hong Kong. It is truly an invaluable experience and I would treasure it for the rest of my life.

- Mark

## Acknowledgement

We would like to express our deepest gratitude to the following organizations for their helpful guidance and enduring support leading to the success of this Delegation:

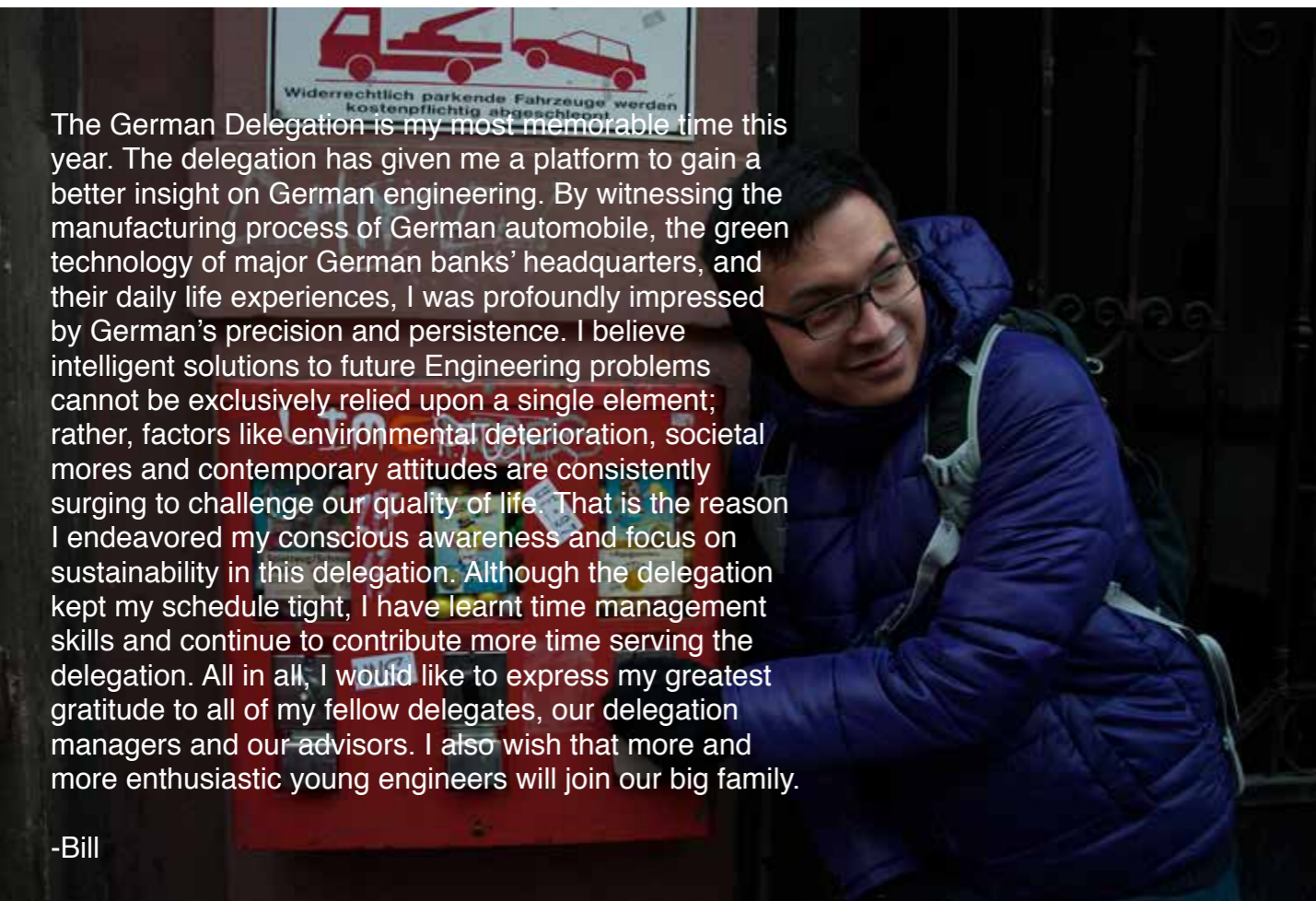
Audi Forum Ingolstadt  
 BMW Welt  
 Commerzbank  
 Deutsche Bank  
 Deutsches Museum  
 Erdinger Weissbräu  
 European Patent Office  
 Fraport AG  
 Institution of Mechanical Engineers – German Branch (IMechE GB)  
 Institution of Civil Engineers  
 Leica Camera AG  
 Olympiapark München GmbH  
 Schloss Neuschwanstein  
 StadtForst Frankfurt  
 Verband Deutscher Maschinen- und Anlagenbau e.V. (VDMA)

We appreciate very much the financial support from the following sponsors:

ATAL Engineering Ltd.  
 Atkins China Ltd.  
 CLP Power Hong Kong Ltd.  
 Greg Wong & Associates Ltd.  
 Hip Hing Construction  
 Hsin Chong Construction Group Ltd.  
 Kum Shing Group  
 Ove Arup & Partners Hong Kong Ltd.  
 The Hong Kong and China Gas Co Ltd.  
 The Hongkong Electric Co Ltd.

We would like to express our special thanks to the following people who generously assist us in this Delegation:-

Mr. Michael AGEL	Ms. Sally LEUNG
Ir Leo CHAN	Ir Arlene LO
Mr. Matthew CHAN	Mr. Peter MUSCHELKNAUTZ
Ir Dr. Wai-tai CHAN	Mr. Kevin POOLE
Ir Kenneth CHEUNG	Dr. Lawrence POON
Prof. Philip CHIU	Dr. Andy STORER
Mr. Michael CHRIST	Ir Samson SUEN
Mr. Reinhard DIVISCH	Mr. Edwin TANG
Mr. Hamish DOUGLAS	Dr. Ernest TSANG
Ms. Corinna FERNANDO	Construction Industry Council (CIC) Zero Carbon Building Staff
Ir Crystal HO	Energizing Kowloon East Office (EKEO) Staff
Dr. Alexandra v KÜNSBERG	
Dr. Andrew LAU	



The German Delegation is my most memorable time this year. The delegation has given me a platform to gain a better insight on German engineering. By witnessing the manufacturing process of German automobile, the green technology of major German banks' headquarters, and their daily life experiences, I was profoundly impressed by German's precision and persistence. I believe intelligent solutions to future Engineering problems cannot be exclusively relied upon a single element; rather, factors like environmental deterioration, societal mores and contemporary attitudes are consistently surging to challenge our quality of life. That is the reason I endeavored my conscious awareness and focus on sustainability in this delegation. Although the delegation kept my schedule tight, I have learnt time management skills and continue to contribute more time serving the delegation. All in all, I would like to express my greatest gratitude to all of my fellow delegates, our delegation managers and our advisors. I also wish that more and more enthusiastic young engineers will join our big family.

-Bill



- + Full range of quality engineering services
- + Most appropriate, timely and beneficial solutions
- + Collaborative relationships with clients and related stakeholders

Founded in 1963, Kum Shing is a multi-disciplinary business group aspiring to play a leading role in the management, operation, construction and maintenance of the city's critical infrastructure.

With more than 2,000 associates in the field of electrical, building, civil, mechanical and lighting, we are dedicated to provide quality contracting services for utilities, government works departments, transportation enterprises and private organizations, in order to enable the sustainable development of Hong Kong.

**眾心成城 跨越金禧**  
TOGETHER WE MAKE IT HAPPEN



# EXCELLENCE, ALWAYS.



For more than a century, HK Electric has been the power behind Hong Kong, making Hong Kong one of the world's leading cities and financial centres.

Over the years, we have continuously improved our services, modernised our facilities and enhanced our reach as Hong Kong grows. Today, we are a global leader in terms of supply reliability, maintaining a world-class record of 99.999% and providing the energy that keeps the heart of Hong Kong beating.

Driving these efforts is our pursuit for excellence and our commitment to doing our best to serve various stakeholders in the community.

Truly, we're always on for Hong Kong.

[www.hkelectric.com](http://www.hkelectric.com)



風雨無間的力量，  
為你不辭勞苦。

[www.clponline.com.hk](http://www.clponline.com.hk)

燃點生活力量

CLP 中電

**We commit** 重承諾  
**We perform** 慎履行  
**We deliver** 獻成果

# ANALOGUE GROUP OF COMPANIES 安樂工程集團

- Building Services
- Data Centre Infrastructure
- Environmental Engineering
- Integrated ICT Solutions
- Intelligent & Green Building Solutions
- Lifts & Escalators
- Maintenance & Services

A leading electrical, mechanical and environmental engineering Group providing quality and reliable services for Hong Kong, Macao and Mainland China.

## A passion for design

With a unique design culture, Arup works closely with our clients, partners and communities on a vast range of projects to shape a better world where people are safer and healthier, have greater amenity and are inspired by their environments.



**Images**  
 1. Parkview Green FangCaoDi, Beijing  
 2. Marina Bay Sands®, Singapore  
 3. Aldar Headquarters, Abu Dhabi  
 4. China Central Television Headquarters, Beijing  
 5. MODE GAKUEN Cocoon Tower, Tokyo

# ATKINS

## Clean energy to provide a green and sustainable future for generations to come

**At Towngas, our aim is to be Asia's leading energy supplier and service provider, with an environmentally friendly focus.**

As Hong Kong's oldest energy utility, our pioneering green initiatives date as far back as the early 70's, when we began using naphtha rather than heavy oil and coal to produce town gas. This move has reduced the emission of sulphur dioxide over the years, contributing to the prevention of acid rain. In 2006, we took another significant step forward, when we introduced natural gas as a feedstock in addition to naphtha. Together with the use of landfill gas for gas production purposes, we have been able to lower emissions of carbon dioxide even further to the impressive level of 20%. Looking forward, we are committed to the ongoing exploration and supply of clean energy to ensure a green and sustainable future for our young people and the generations to come.



Excellence is not achieved by chance,  
it is in our DNA.



Constructing buildings and infrastructure in Hong Kong,  
China and South East Asia for over 50 years.  
Hip Hing Construction — the contractor you can trust.



A LEADING  
PROVIDER OF  
CONSTRUCTION,  
PROPERTY AND  
RELATED SERVICES

**Hsin Chong Construction Group Ltd.**

Hsin Chong Center, 107-109 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong  
Tel: 2579 8238 Fax: 2516 6596 [www.hsinchong.com](http://www.hsinchong.com)

