

## Visit to Beijing, China

2016.09.08-09

The Chinese National Engineering Research Centre for Steel Construction (Hong Kong Branch) (CNERC) and the Hong Kong Constructional Metal Structures Association (HKCMSA) paid an official visit to Beijing, and visited a number of National Associations, Research Institutions and Universities. The delegation team consisted of:

- Ir Prof. K.F. Chung                      Director of CNERC and President of HKCMSA
- Mr. Y.K. Pang                            General Secretary of HKCMSA
- Dr. H.C. Ho                                Deputy Secretary General of CNERC and  
Executive Manager, Technical Centre of HKCMSA

During the two-day visit, the CNERC visited the following delegates:

- **China Metallurgical Construction Research Institute (CMCRI)**  
*Prof. Q.R. Yue, Prof. Y. Liu, Prof. Z.D. Ma, and Ir Y.H. Wu*
- **Chinese National Engineering Research Centre for Steel Construction (CNERC BJ)**  
*Ir Z.X. Hou, Dr. Y. Zheng, and Dr. C. Gong*
- **China Iron and Steel Association**  
*Ir J.D. Chi*
- **Tsinghua University**  
*Prof. Y.J. Shi*
- **University of Science and Technology Beijing**  
*Prof. J.T. Han*
- **Beijing University of Civil Engineering and Architecture**  
*Prof. A.L. Zhang*

The two-day visit was a success that CNERC discussed various areas of collaboration with CNERC BJ, and three major areas of engineering research collaboration had been identified. Also, CNERC visited a number of research institutions and universities, and introduce the missions and major research work of CNERC. During various discussions, CNERC learned about difficulties of producing high-quality steel materials, and gained valuable advices on engineering research and application of structural steel. This helped developments of current research and development projects, and set direction for future research and development activities of CNERC.

## CNERC BJ and CNERC – Meeting for Engineering Research Collaboration

On 8 September 2016, Prof. K.F. Chung, Mr. Y.K. Pang and Dr. H.C. Ho visited CMCRI and CNERC BJ. Prof. Q.R. Yue and Prof. Y. Liu gave a warm reception to the delegates of CNERC.



Prof. K.F. Chung presenting a souvenir to Prof. Q.R. Yue



Prof. K.F. Chung presenting a souvenir to Prof. Y. Liu

Prof. Q.R. Yue and Prof. Y. Liu congratulated establishment of CNERC, and hoped that CNERC would strive to perform its missions in conducting engineering research on structural steel in line with national policies on research and development of the Chinese Steel Construction Industry. Prof. K.F. Chung reported recent developments of CNERC together with key research projects conducted in the past six months. After that, CNERC had a meeting on technical collaborations with Prof. Z.X. Hou, Chief Engineer, Dr. Y. Zheng, Assistant Director, and Dr. C. Gong, Senior Engineer, all of CNERC.

The Technical Meeting was chaired by Prof. Z.X. Hou and Prof. K.F. Chung, and the following three key areas of collaboration were identified:

1. To compile a Technical Design on “Equivalent Chinese steel materials to overseas specifications”.
2. To introduce a quality certification scheme for steel fabricators.
3. To provide training and qualification for welders.



Meeting with Prof. Z.X. Hou

Details of the key areas of collaboration:

1. To compile a Technical Design on “Equivalent Chinese steel materials to overseas specifications”.

CNERC BJ recognized the work of CNERC in the past years that the Technical Guide entitled “*Equivalent steel materials to European Steel Materials Specifications*” contributed substantively to both technical status and practical application of Chinese structural steelwork in overseas construction projects. Currently, CNERC BJ was preparing a conversion of the Chinese steel materials specifications equivalent to those steel materials specifications commonly used in overseas construction projects, and all of these information would be included in the “Equivalent Chinese steel materials to overseas materials specifications”. Based on the Technical Guide entitled “Equivalent steel materials to European steel materials

specifications” of CNERC, and the long years of knowledge and applications of international design practice of the Hong Kong Construction Industry, CNERC BJ would like to collaborate with CNERC to develop a series of technical documents on equivalent steel materials, and CNERC would be responsible for preparation of "Equivalent Chinese steel materials to American specifications".

2. To introduce a quality certification scheme for steel fabricators.

CNERC reviewed on adoption of Chinese steel materials in the construction industry in Hong Kong, Macau and Southeast Asia over the past ten years. It was concluded that quality of Chinese steel materials did vary significantly, and in some projects, an acceptance rate of quality assurance tests of Chinese structural steelwork on site at merely 85 to 90% was encountered. In view of this, one of the major tasks of CNERC was to promote a certification scheme of Chinese steel materials and structural steelwork, based on experiences of the Hong Kong Construction Industry in international testing certification to help export of high quality Chinese steel materials. In early September, CNERC visited the Hong Kong Accreditation Service (HKAS), a government body overseeing accreditation in Hong Kong, and secured its support to promote a "Certification Scheme on Quality Steel Fabricators " of CNERC.

In mid-September, CNERC issued the first draft of a consultation paper on "Certification Scheme on Quality Steel Fabricators" to a number of works departments, professional associations, international renowned engineering consultancy firms and construction companies in Hong Kong for initial comments. After gathering various technical advice, a consultation paper would be issued to the Hong Kong construction industry to seek for their views and consensus. CNERC would also communicate with main certification bodies in Hong Kong for advance information.

CNERC BJ fully supported the "Certification Scheme on Quality Steel Fabricators” proposed by CNERC. CNERC BJ would select outstanding structural steel fabricators of the "Chinese Structural Steel Fabricators Accreditation Scheme" and "Structural Steel Fabricators Accreditation Standards” of China Steel Construction Society to apply for "Certification Scheme on Quality Steel Fabricators " of CNERC.

Moreover, Ir Prof. Z.X. Hou mentioned that CMCRI and CNERC were actively promoting industrialization of structural steel, including expansion of welding materials production and R&D base of CMCRI in association with MCC (Beijing) Metallurgical Product Certification Centre Co., Ltd. As led by MCC, Prof. Y.H. Wu was responsible for publication of "Chinese National Standards for Corrosion Protection of Steel Structures" and "Wind Prevention Testing Standards for Construction Metals".

3. To provide training and qualification for welders

Over the past decade, a shortage of welders for steel construction and a lack of steel construction projects in Hong Kong resulted in a significant loss of professionals and technicians in the field. At the same time, a new generation of welders in Hong Kong were found to be inexperienced as many of them did not possess international professional qualifications. Therefore, CNERC would organize international professional training and assessment with support from American Welding Society and the Welding Institute for local welders.

CNERC BJ was supportive to CNERC in this aspect on provision of course materials and professional coaches. Prof. D.Z. Ma, Deputy Director of the Institute of Welding Research of CMCRI, advised that the Institute of Welding Research was dedicated to provide training to professional welders for the Mainland China, and many of its welders represented China to participate in world-class events and won a lot of awards. CMCRI was also an accreditation body of the American Welding Society and the Welding Institute. CNERC BJ proposed to collaborate with the Hong Kong Constructional Metal Structures Association, the Macau Society of Metal Structures, and CNERC to set up a "Professional Welding Training Base" in Sanzao, Zhuhai to train professional welders.



Prof. K.F. Chung presenting a souvenir to Ir Prof. Z.X. Hou



Meeting with Prof. Y.J. Shi and Prof. Y.W. Wu

## Visit the China Iron and Steel Industry Association (CISA)

On 9 September 2016, Prof. K.F. Chung, Mr. Y.K. Pang and Dr. H.C. Ho visited Prof. J.D. Chi, Vice President of CISA, and discussed various matters on steel production. Prof. Chung gave a brief report on latest developments of CNERC and its major research projects in the past six months. He also discussed a number of quality issues on adoption of Chinese steel materials in overseas construction projects with Prof. Chi. Prof. Chung expressed concern on poor quality of some Chinese steel materials, and in some projects, an acceptance rate of quality assurance tests of Chinese structural steelwork on site at merely 85 to 90% was encountered.



Prof. K.F. Chung meeting Prof. J.D. Chi, CISA

Prof. Chi pointed out that the Chinese steel industry has already mastered high quality production technology of structural steel, and even for high strength high performance steel materials. However, in the past decade, the Chinese steel industry was going through a rough development stage as many steel mills strived for maximizing production levels at the expenses of sufficient smelting time, and this had adverse effects on quality of some steel materials.

In this regard, CISA revised the documents entitled "Management of Metallurgical Products in Achieving International Standards of Similar Products" and "Regulations on Implementing Certification of Metallurgical Products in Achieving International Standards of Similar Products", which set up fundamental standards of steel production in the steel industry, and established the "Certification of Metallurgical Products – Gold Award" in recognition of high-quality metallurgical products since 2012. CISA made reference to quality control of similar products both within the Mainland and abroad, and collected big data of continuous quality control, to assess domestic metallurgical products annually. The certification process was conducted once a year, through open application, preliminary assessments, on-site verification, professional examinations, public announcement, etc.. The final endorsement would be made by the Assessment Committee. For quality steel materials, both "Gold Awards" and "Premium Quality Awards" would be awarded according to specific requirements, and each awarded title would be valid for three years.



A sample of “Certification of Metallurgical Products – Gold Award”

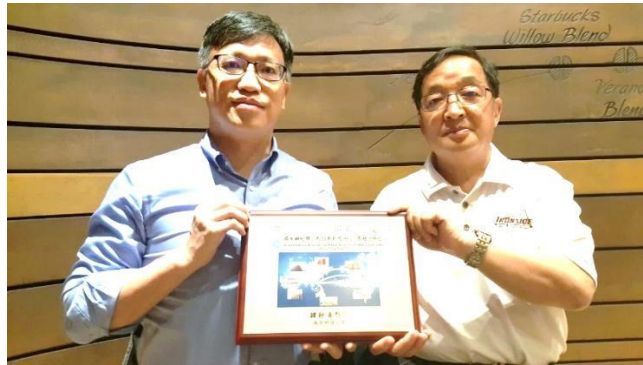
Every year, CISA compiled a Year Book on "Certified Quality Metallurgical Products". In the Year Book of 2015, a total of 179 certified products were listed, of which, 169 were awarded "Gold Awards" while 10 were awarded "Excellent Quality Awards". Hence, CISA proposed CNERC to make reference to the quality certification scheme of "Gold Awards", and apply it to the "Certification Scheme on Quality Steel Fabricators ", or even adopt the scheme as the standard of Chinese steel supply for construction projects in Hong Kong.



Prof. K.F. Chung presenting a souvenir to Prof. J.D. Chi

### **Visit University of Science and Technology Beijing**

Prof. K.F. Chung also met Prof. J.T. Han of University of Science and Technology Beijing during the visit. Prof. K.F. Chung also exchanged views on quality of Chinese steel products with Prof. Han who shared common views with those of CISA. Prof. Chung also brought up issues on smelting time during steel production, and effects of welding on high strength steel materials. Prof. Han comments on various smelting methods, and their effects onto mechanical properties of high strength steel materials. He agreed that wide application of QT and TMCP steel materials in building construction remained to be major challenges as well as development opportunities of the Chinese Iron and Steel industry in the coming decades.



Prof. K.F. Chung presenting a souvenir to Prof. J.T. Han

### **Visit Beijing University of Civil Engineering and Architecture**

Prof. K.F. Chung also visited Prof. A.L. Zhang, President of Beijing University of Civil Engineering and Architecture, and conducted academic, research and technological exchanges with Prof. Zhang. Moreover, Prof. Chung introduced establishment, missions and research projects of CNERC to Prof. Zhang. Prof. Zhang appreciated the work of CNERC, and he explained various academic and research achievements of the Beijing University of Civil Engineering and Architecture in recent years. Both Prof. Chung and Prof. Zhang agreed to further explore technical collaboration in the future.



Prof. A.L. Zhang presenting a souvenir to Prof. K.F. Chung