

CNERC

NEWSLETTER
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FEATURE STORY

Technical Seminar on Effective Use of S690 to S960 High Strength Steel in Construction

The Chinese National Engineering Research Centre for Steel Construction (Hong Kong Branch) and Hong Kong Constructional Metal Structures Association jointly organized a Technical Seminar entitled “*Effective Use of High Strength Steel S690 to S960 in Construction*” on 21 November 2025 in a Hotel ICON, PolyU. The event was supported by Development Bureau of the Government of Hong Kong SAR, the Construction Industry Council, and the Building Technology Research Institute.

Ir Ricky C. K. Lau, Permanent Secretary for Development (Works) of the Government of Hong Kong SAR was invited as Guest of Honour to give an Opening Speech, and Prof. K. F. Chung, Director of CNERC has given a Welcoming Speech.

The Technical Seminar was organized as a platform to disseminate research findings and experiences on advanced construction technology of high strength S690 to S960 steel with special emphases on practical applications. It also served as a focal point for renowned engineers to share experiences in adopting high strength S690 to S960 steel in their construction projects. A total of 10 presentations were made, and the Seminar was attended by about 200 engineers.



The Seminar was attended by about 200 engineers
Hotel ICON, TST East, 2025.11.21



Prof. K. F. Chung (left) presented the Final Draft of the “*Standard for Design of Steel Structures using 690 to 960 MPa High Strength Steel*” to Prof. Shi Yongjiu (right), Vice Chairman of the China Steel Construction Society, and witnessed by Ir Ricky Lau (middle).

The Opening Ceremony of the Technical Seminar was attended by a number of honorable guests including:

- Ir Joseph Lo, Head of Project Strategy and Governance Office, Development Bureau
- Ir Thomas Ho, Chairman of Construction Industry Council
- Ir Albert Cheng, Executive Director of Construction Industry Council
- Ir Harry Ma, Deputy Director of Civil Engineering and Development Department
- Ir Julian Kwan, Assistant Director (Tech) of Civil Engineering and Development Department
- Ir Thomas Hui, Dep Head of GEO (Mainland), Civil Engineering and Development Department

Sponsors





From left: Ir Joseph Lo, Ir Albert Cheng, Prof. K. F. Chung, Ir Ricky Lau, Prof. Y. J. Shi, and Ir Thomas Ho.



Group photo of the Speakers of the morning session with the Guest of Honor.
From left: Prof. Michael Yam, Mr. Alfred Wong, Prof. K. F. Chung, Ir Ricky Lau, Prof. Y. J. Shi, and Prof. S. Y. Zhu.



Group photo of the Speakers of the afternoon session with the Guest of Honor.
From left: Mr. Kenny Wong, Mr. Y.W. Leung, Dr. M. F. Hui, Prof. K. F. Chung, Ir Ricky Lau,
Prof. Y. J. Shi, Prof. Andy Leung, Ir Tom Leung, Ir Bear Ding, and Dr. H. C. Ho.

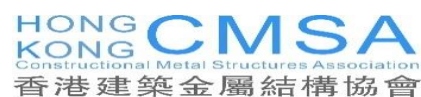


Prof. K. F. Chung presented a souvenir to Ir Ricky Lau as a token of appreciation.

Programme

9:00 am	Opening Ceremony <i>Welcoming Speech</i> <i>Opening Speech</i> <i>by Ir Ricky C. K. Lau, Permanent Secretary for Development (Works)</i>
9:30 am Presentation 1	S690 to S960 high strength steel and their benefits in construction <i>by K. F. Chung, H.C. Ho and Y.F. Hu</i>
10:10 am Presentation 2	Development of S460 to S690 high strength steel in China <i>by Y. J. Shi</i>
10:40 am	Coffee Break
11:10 am Presentation 3	From Research to Reality: Forging future with lighter, stronger, and greener structures in GBA <i>by Alfred K. F. Wong</i>
11:40 am Presentation 4	Iron-based shape memory alloy BRBs for seismic resilience: Active restoration and low-cycle fatigue performance <i>by Michael C. H. Yam</i>
12:10 noon Presentation 5	High performance steel structures enabled by novel shape memory alloy elements <i>by S. Y. Zhu</i>
12:40 pm	Lunch
2:00 pm	Opening Speech <i>by Ir Joyce Lau, Project Manager (North), North Development Office, Civil Engineering and Development Department, Development Bureau.</i>
2:10 pm Presentation 6	Construction of footbridges using ultra-high strength S960 steel <i>by Tom W. L. Leung and Bear Z. C. Ding</i>
2:40 pm Presentation 7	Design of high strength S960 steel members and welded sections <i>by K. F. Chung and Y. W. Leung</i>
3:05 pm Presentation 8	Robotic site welding of S960 steel and related quality assurance <i>by H. C. Ho and Kenny Y. L. Wong</i>
3:30 pm	Coffee Break
4:00 pm Presentation 9	Field investigation of socketed S690 steel pile performance <i>by Andy Y. F. Leung</i>
4:30 pm Presentation 10	Innovation in modular integrated construction <i>by M. F. Hui</i>
5:00 pm	End

Jointly Organized by



Supported by



Development Bureau
The Government of the Hong Kong Special Administrative Region
of the People's Republic of China



To kick off the Technical Seminar, Prof. K. F. Chung, Director of CNERC gave a presentation on “S690 to S960 high strength steel and their benefits in construction”.



Prof. K. F. Chung

After that, Prof. Y. J. Shi of Tsinghua University gave a presentation entitled “Development of S460 to S690 high strength steel in China”.



Prof. Y. J. Shi

Mr. Alfred K. F. Wong, Chief Executive Officer of Building Technology Research Institute, gave a presentation on “From Research to Reality: *Forging future with lighter, stronger, and greener structures in GBA*”.



Mr. Alfred K. F. Wong

Prof. Michael C. H. Yam, Head of Department of Building and Real Estate, PolyU gave a presentation on “Iron-based shape memory alloy BRBs for seismic resilience: Active restoration and low-cycle fatigue performance”.



Prof. Michael C. H. Yam

Prof. S. Y. Zhu, Head of Department of Civil and Environmental Engineering, PolyU gave a presentation entitled “High performance steel structures enabled by novel shape memory alloy elements”.



Prof. S. Y. Zhu

Ir Joyce Lau, Project Manager (North), North Development Office, Civil Engineering and Development Department was invited as the Guest of Honour for the afternoon session of the Technical Seminar.



Ir Joyce Lau gave an Opening Speech in the afternoon session of the Technical Seminar.

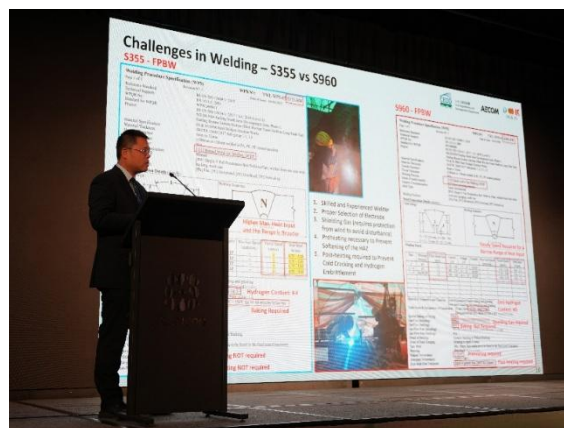


Prof. K. F. Chung presented a souvenir to Ir Joyce Lau as a token of appreciation.

Ir Tom W. L. Leung, Senior Engineer of Civil Engineering and Development Department, and Ir Bear Z. C. Ding, Construction Business Head of Chun Wo, gave a presentation entitled “Construction of footbridges using ultra-high strength S960 steel”.



Ir Tom Leung



Ir Bear Ding

Prof. K. F. Chung, Director of CNERC, and Ir Y. W. Leung, Managing Director of YWL Engineering Pte Limited, gave a presentation entitled “Design of high strength S960 steel members and welded sections”.



Prof. K.F. Chung



Ir Y.W. Leung

Dr. H. C. Ho, Deputy Executive Secretary of CNERC, and Mr. Kenny Y. L. Wong, Managing Partner of Jumbo Construction Technology Limited, gave a presentation entitled “Robotic site welding of S960 steel and related quality assurance”.

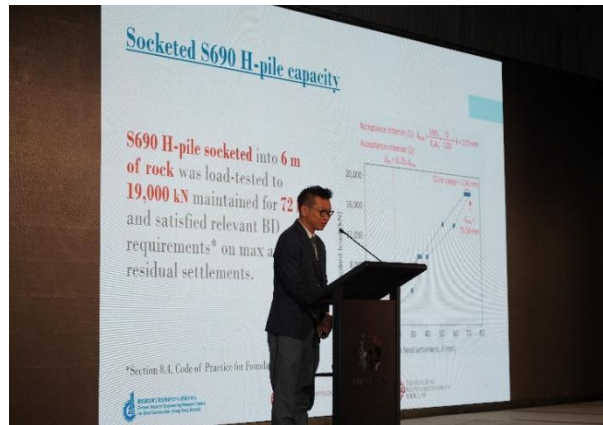


Dr. H.C. Ho



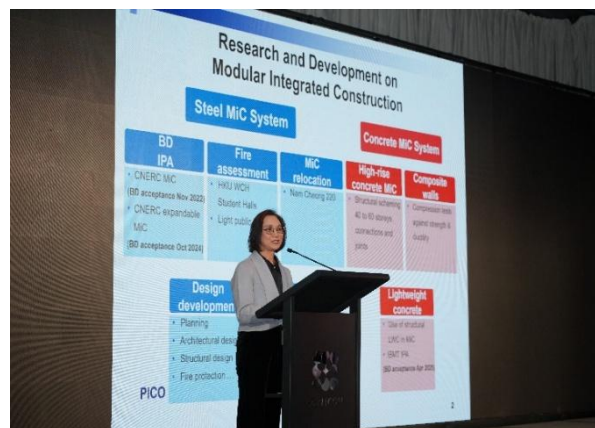
Mr. Kenny Wong, JCT

Prof. Andy Y. F. Leung, Associate Head of Department of Civil and Environmental Engineering, PolyU, gave a presentation entitled “Field investigation of socketed S690 steel pile performance”.



Prof. Andy Leung, CEE, PolyU

Dr. M. F. Hui, Principal Research Fellow of CNERC, gave a presentation entitled “Innovation in modular integrated construction”.



Dr. M. F. Hui, CNERC

A group photo of the Honorable Guest and Speakers of the afternoon session.



NEWS

Research Institute of Standards and Norms of State Ministry of Housing and Urban-Rural Development Seminar on “A comparative study on steel codes among Chinese and overseas construction industry for technical compatibility and alignment”

A high-level seminar entitled “A comparative study on steel codes among Chinese and overseas construction industry for technical compatibility and alignment” under Research Institute of Standards and Norms of State Ministry of Housing and Urban-Rural Development, P. R. China was successfully held on 31 October 2025.

As one of the most important themes of the “International Exchange Week on Technical Standards for Housing and Urban-Rural Development” series, a high-level seminar entitled “A comparative study on steel codes among Chinese and overseas construction industry for technical compatibility and alignment” was successfully held in Shenzhen on 31 October 2025. This seminar was organized by Research Institute of Standards and Norms of State Ministry of Housing and Urban-Rural Development, P. R. China. It is the outcome of a high-level research and development project under the general research theme of “Fundamental research for construction standardization 2024” of the Institute. The project is administrated by China Construction Metal Structure Association. The principal investigators of the project are:

- Prof. Y. J. Shi, Tsinghua University – Lead Investigator
- Prof. X. Y. Sun, China Constructional Metal Structure Association
- Prof. K. F. Chung, The Hong Kong Polytechnic University
- Prof. Z. M. Chen, China Construction Science and Industry Corporation Ltd.



The seminar was co-chaired by Prof. X.Y. Sun, Deputy Secretary-General of China Construction Metal Structure Association and Chairperson of its Steel Structure Division, and Prof. Y.L. Guo, Tsinghua University.



Ms. Xiaoyan SUN
Prof. of CCMSA



Prof. Yanlin GUO
Tsinghua University

The seminar was officiated by

- **President Qi QU** China Construction Metal Structure Association
- **Director Bo CHEN** Research Institute of Standards and Norms
State Ministry of Housing and Urban-Rural Development
- **Head Surong FAN** Standard Quota Department
State Ministry of Housing and Urban-Rural Development



Mr. Qi QU
President of CCMSA

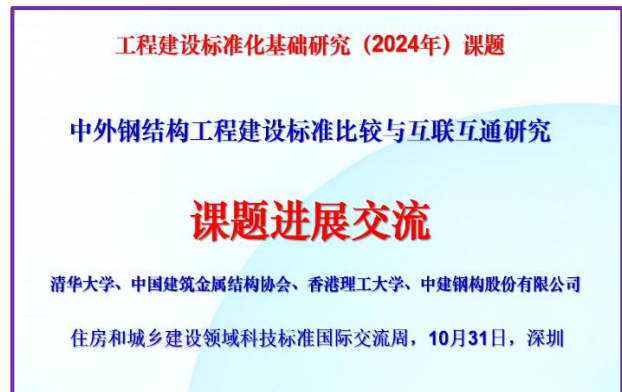


Mr. Bo CHEN
Director of RISN, MHURD



Ms. Surong FAN
Head of SQD, MHURD

During the seminar, Prof. Y.J. SHI, Principal Investigator, made a detailed and in-depth report involving research background and objectives, main development and achievements, and also on-going research work.



Prof. Y.J. Shi
Tsinghua University

After the seminar, Prof. K.F. CHUNG, the Co-Principal Investigator, provided additional information on the following issues:

1. Design values of the yield strengths of Chinese steel, and corresponding material partial safety factors;
2. Mobilization of full cross-sectional moment resistances in steel beams according to plastic design, leading to an increased efficiency in these beams;
3. Group Standard: “*Standard for design of steel structures using S690 and S960 steel to EN 1993-1*” is written in accordance with the EN format to allow foreign engineers to better understand Chinese design documents; and
4. Adoption of performance-based design for seismic resistant structures allows effective use of S690 and S960 high strength steel.



● Research motivation and methodology

This project aims to review and compare the relevant standards on steel design and construction in China, the United States and Europe, and also to assess their technical differences. It is important to propose improvements to Chinese standards to facilitate export of Chinese steel materials and products.

Major tasks:

1. To establish a system for structural steel standards appropriate for various "Belt and Road" countries, i.e. internationalized Chinese standards.
2. To develop technical guidelines and application documents for these Chinese standards.
3. To formulate technical promotion for a wide adoption of these Chinese standards.

● **Main achievements**

1. Thorough review on technical standards for steel structures among China, the United States and Europe.
2. Literature review, enterprise visits and surveys, small-scale discussions.
3. Corporation and industry surveys.
4. Comparative analysis of standards among China, the United States, and Europe.
5. Preliminary proposals for the technical compatibility and alignment among Chinese and overseas steel codes

● **Follow-up work**

1. Comparative analysis of standards for seismic design of steel structures.
2. Comparative analysis of standards for fabrication and installation of steel structures.
3. Proposals for technical compatibility and alignment among Chinese and overseas standards for design of steel structures.
4. Suggestions for updating and revising Chinese standards for design of steel structures.

NEWS

Prof. K. F. Chung, Director of CNERC, Dr. Y. F. Hu, Research Assistant Professor, and Dr. B. Li, Postdoctoral Fellow attended the 9th Members' Congress of China Steel Structure Association cum the 2025 China Steel Structure Conference upon the invitation of China Steel Structure Association during 13 – 14 October 2025.



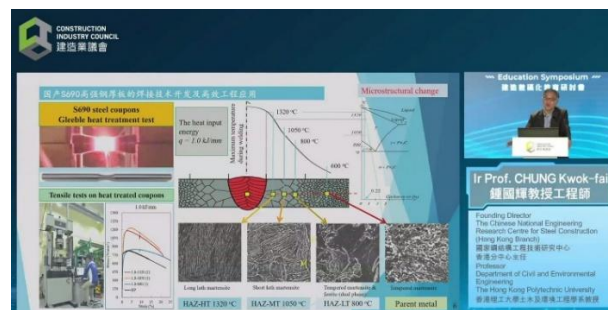
NEWS

Dr. H. C. Ho, Deputy Executive Secretary of CNERC, attended the 40th Anniversary Commemorative Conference of the Cold-Formed Steel Branch of the China Steel Structure Association and the Academic Conference on Frontier Technologies of Cold-Formed Steel 2025 held in Beijing by the Cold-Formed Steel Branch of the China Steel Structure Association. He also attended the first meeting of the 9th Council and Expert Working Group of the Cold-Formed Steel Branch during 30 – 31 October 2025.



NEWS

Prof. K. F. Chung, Director of CNERC was invited by the Construction Industry Council (CIC) to share his research work on effective use of S690 to S960 steel in construction, and development work on robotic site welding in a construction project. The presentation was made at the CIC Centre for Future Construction on 31 October 2025, and it was attended by about 1,000 engineers and professionals online.



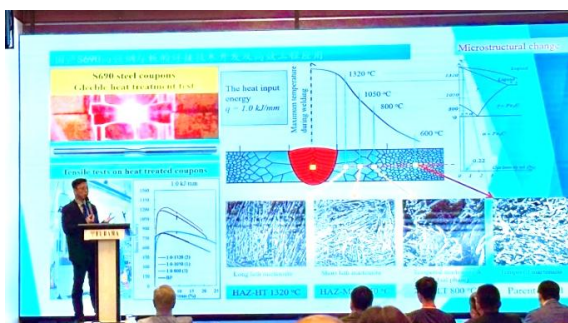
NEWS

Prof. K. F. Chung, Director of CNERC, was invited by China Construction Metal Structure Association to attend “The Third Seminar on Belt and Road Cooperation: Advancing Global Presence of China’s Construction Industry”, and to deliver a keynote speech entitled “Comparison between Greater Bay Area 690 to 960 MPa Structural Steel Design Standard and EU Structural Steel Design Standard EN 1993-1” on 3 December 2025.



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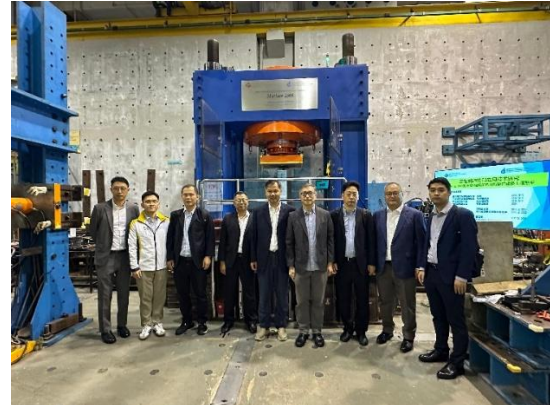
Prof. K.F. Chung, Director of CNERC, was invited by the 12th International Conference on Advances in Steel Structures to make a keynote presentation entitled “Effective use of S690 to S960 high strength steel in construction”. The Conference was organized by the National University of Singapore from 9 to 12 December 2025. Both Dr. H.C. Ho, Deputy Executive Secretary, and Dr. W. Chen also attended the Conference.



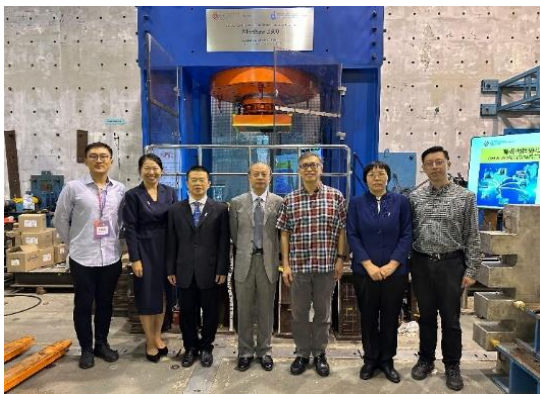
VISIT



Prof. W. Li, Tsinghua University, and Prof. Dennis Lam, University of Bradford visited CNERC on 30 October 2025 for Ms. Yancy Ding's PhD examination.



Mr. D. Cheng, General Manager Assistant of Maanshan Iron & Steel Ltd. led a delegation team together with Mr. Charles Fok, Managing Director of KYH Steel Co., Ltd. and delegates of his company visited CNERC on 30 October 2025.



Mr. L. Y. Wu, Second-Level Inspector of the Department of Standards and Norms of the Ministry of Housing and Urban-Rural Development; M. X. Nie, Director of the Implementation Guidance and Supervision Division; M. X. Liu, Chief Expert of the Science and Technology and Industrialization Development Center; and L. Gong, Engineer of the Industrial Development Division, visited CNERC on 4 November 2025.



Prof. Eiki Yamaguchi, University of Kyushu Institute of Technology visited CNERC on 28 November 2025 for Mr. W. Chen's PhD examination.

CONTACT US

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