



## Symposium on **Design and Assessment of Concrete Bridges in the Changing Landscape of Climate Resilience – the Story Behind**

Organised by

Department of Civil Engineering, The University of Hong Kong

Supported by

American Society of Civil Engineers (Great China Section)

Structural Division, Hong Kong Institution of Engineers

Hong Kong Institute of Steel Construction

This one-day short course is mainly concerned about the structural design of new concrete bridges and assessment of existing ones to allow for changes in the roads and weather conditions in the future. There is an expected significant increase in traffic loads (as electric vehicles are heavier than conventional fuel-based vehicles). For example, the cantilevered deck slab of the bridge adjacent to the bridge parapet in particular has to safely sustain bending moment generated by transmission of the vehicular collision from the parapet to the bridge deck and gravitational loads on the deck slab itself combined. The intensity of seismic actions on bridges will also increase with the traffic load, and so is the range of temperature fluctuation which is also projected to widen as climatic conditions become more extreme. The short course is divided into three parts: (1) Design for vehicular collision; (2) Design for thermal and other effects; and (3) Design for seismic actions. A large part of the course material has never been presented in any courses by the speakers, both of whom have practical experience in the design and assessment of highway bridges, as well as being leaders of research in the field.

Professor Nelson Lam, who is currently Leader of Structures and Buildings at the University of Melbourne (and co-authored the textbook “Collision Actions on Structures” published by CRC Press in 2022), has developed experimentally validated methods for calculating collision loads which are simple to apply and yet give estimates close to measurements from impact experiments. Current provisions of the equivalent static force of a vehicular collision currently stipulated in highway codes of practice have a long history but the basis has fundamental limitations. Professor Francis Au, who was formerly Head, Department of Civil Engineering at the University of Hong Kong (HKU) (and principally authored the guidebook “Design and Assessment of Bridges in Regions of Low to Moderate Seismicity – The Hong Kong Context” published by the Construction Industry Council) is working part-time in the industry after his retirement from HKU. He has investigated the effects of climate change on the extreme temperature actions on bridges.

**WHO SHOULD ATTEND:** This course is suitable for civil and structural engineers working at different levels from graduate engineers to supervising senior / chief engineers, checkers, regulators and code drafters who want to acquire a sound fundamental understanding of the key principles on this subject in order to effectively exercise their respective professional duties that are associated with the engineering of structures.

### **Expert Speakers:**

Professor Francis Au – Head of AIS Academy and Technical Advisor, Asia Infrastructure Solutions.  
Honorary Professor and Former Head, Department of Civil Engineering, The University of Hong Kong  
BSc(Eng), MSc(Eng), PhD, FHKIE, FISTructE, FICE, RPE(CVL, STL), CEng,

Professor Nelson Lam - Professor and Leader of Structures and Buildings Discipline, Infrastructure Engineering, The University of Melbourne, Australia. BSc, MSc, DIC, PhD, FISTructE, FIEAust, FHKIE, MICE, CEng.

### **Continuing Professional Development Credits:**

The course is considered suitable for 1 CPD-day credit.

\* A ‘Certificate of Attendance’ will be issued to those who attend the registered sessions.

**Dates:** Thursday 10, April 2025 (9:00 a.m. - 5:30 p.m.).

**Course Venue:** 2/F, The Function Room, The Harbourview, 4 Harbour Road, Wan Chai, Hong Kong

**Course Fee:** HK\$1850 (including course note, a 1 CPD-day ‘Certificate of Attendance’\*, a lunch buffet, and two coffee breaks) (Non-refundable).

**Enquiries:** All enquiries about this professional course should be addressed to Mr Dong Xinhui, Research Student Centre, Haking Wong Bldg, Department of Civil Engineering, The University of Hong Kong at +852-9486 5877. Email: [xinhuidong@connect.hku.hk](mailto:xinhuidong@connect.hku.hk).

THE UNIVERSITY OF HONG KONG  
DEPARTMENT OF CIVIL ENGINEERING

One Day Symposium on

**Design and Assessment of Concrete Bridges  
in the Changing Landscape of Climate Resilience – the Story Behind**

**Course Venue: 2/F, The Function Room, The Harbourview**

**COURSE PROGRAMME**

**Thursday 10 April 2025**

8:45 am - 9:00 am - Registration

9:00 am - 9:10 am - Introduction to the short course and speakers (University Representative)

9:10 am - 10:10 am - Fundamental principles of collision actions on structures (Prof Nelson Lam)

10:10 am - 10:30 am - Morning Tea & Coffee

10:30 am - 12:30 pm - Design of collision action on bridge pier and parapet on deck (Prof Nelson Lam)

12:30 pm - 2:00 pm - Lunch

2:00 pm - 3:00 pm - Design for thermal and other effects in hot weather environment (Prof Francis Au)

3:00 pm - 3:20 pm - Afternoon Tea & Coffee

3:20 pm - 5:20 pm - Design for seismic actions (Prof Francis Au)

5:20 pm - 5:30 pm - Closing and Discussions (Prof Francis Au and Prof. Nelson Lam)

## REGISTRATION FORM

To: Mr Dong Xinhui, Course Secretariat

Please register me / us for the following professional course:

### **Design and Assessment of Concrete Bridges in the Changing Landscape of Climate Resilience – the Story Behind**

Date: Thursday 10 April 2025

Time: 9:00 a.m. - 5:30 p.m.

Course Venue: 2/F, The Function Room, The Harbourview

Course Fee: HK\$ 1850

Please complete in **ENGLISH** (in **BLOCK LETTERS**)

	Surname	Given Name	Name of Company	Telephone	Email Address	Need Hardcopy of Course Note (Y/N)
1						
2						
3						
4						
5						

Registration Fee	Number of Persons	Total
HK\$ <u>1850</u> per person		HK\$

The registration fee includes course note, a 1 CPD-day ‘Certificate of Attendance’, a lunch buffet, and two coffee breaks. The ‘Certificate of Attendance’ will be issued to those who have attended all sessions. Note that **ONLY** soft copy of the course note will be provided unless requested in the above form. The download link will be provided in the due course.

All payments are non-refundable.

Please send the completed registration form with a crossed cheque made payable to  
**“The University of Hong Kong”**:

*Mr Dong Xinhui, Course Secretariat  
Department of Civil Engineering, The University of Hong Kong, Pokfulam Road, Hong Kong*

Please note that registration will only be confirmed upon receipt of payment and on a first-come-first-served basis. **DO NOT** send any cash in the post. The official receipt for the registration fee will be distributed on the days of the course.

Contact: Mr Dong Xinhui, Research Student Centre, Haking Wong Bldg, Department of Civil Engineering, The University of Hong Kong at +852-9486 5877. Email: [xinhuidong@connect.hku.hk](mailto:xinhuidong@connect.hku.hk)

Enclosed Cheque No.: \_\_\_\_\_ Bank: \_\_\_\_\_