

Canadian Society for
Civil Engineering



Société canadienne
de génie civil

COURSE / FORMATION

Materials, Methods and Design of FRC/UHPC Matériaux, méthodes et concepts des FRC/UHPC

Vancouver	September 25	English
Calgary	October 9	English
Edmonton	October 10	English
Toronto	November 13	English
Ottawa	November 14	English
Montreal	November 19	Français
Montreal	November 20	English
Quebec	November 21	Français
Moncton	November 27	English

For more information:

csce.ca/en/lifelong-learning/workshops

En savoir plus:

csce.ca/fr/formation-continue/formations

National sponsor/Commanditaire national



Sponsor/Commanditaire 6 eastern cities



Sponsor/Commanditaire Toronto, Ottawa



The focus of the course is on bridge/transportation structures, however; the contents may be used to design other structures. There will be an emphasis on the structural application of UHPC/FRC.

Our Instructors:

Vancouver, Calgary, Edmonton and Winnipeg

[Mr. V.H. Perry](#)

[Dr. Katrin Habel](#)

Toronto and Ottawa

[Dr. Bruno Masicotte](#)

[Mr. Peter Calcetas](#)

Montreal, Quebec City and Moncton

[Mr. Peter Calcetas](#)

[Dr. Bruno Masicotte](#) (Montreal & Quebec City -English and French)

8:00 Registration opens

8:30 am Introduction and course logistics

9:15 – 10:15 **Introduction to FRC/UHPC**

What is UHPC/FRC? Typical components & material properties, showing examples such as:

1. Precast Bridge Connections
2. Deck overlays
3. Bridge girders
4. Pier Jacketing - Mission S4 seismic
5. Link Slabs

10:30 – Noon

Material Properties & property characterization

Covering tension (TSFRC and THFRC), Other mechanical properties, Shrinkage, Creep, other durability properties

Batching, casting, placing, curing, demoulding, and the impacts on fibre distribution. Construction/cold joints and QC/QA

Material ID cards and how to specify UHPC?

Show what will be on material ID card

Discuss how to specify UHPC:

Material properties

Casting

Trial batches and representative trial members

Noon – 1:00 Lunch break - 60 min.

1:00 – 2:30 **Structural Applications of UHPC/FRC**

Design considerations, fibre orientation/efficiency & effect of casting, restraint effects, cold joints and design models for bending and shear.

2:30 – 2:45 Coffee - 15 min.

2:45 – 4:15 **Design example**