

Scope and activity plan

Subcommittee of
structural design and
performance
(SC3)

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Scope in SC3 activity

- To collect HFC application examples and ideas
- To organize performance-based design guideline for the application, where HFC properties are to be explicitly accounted.
- To suggest appropriate quality control scheme for HFC property

Correlation with other SCs

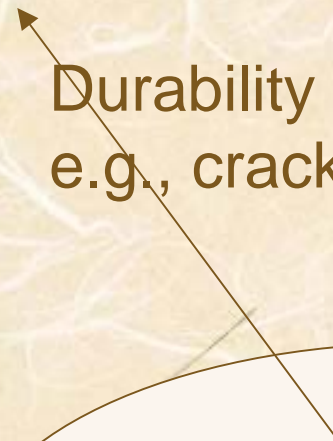
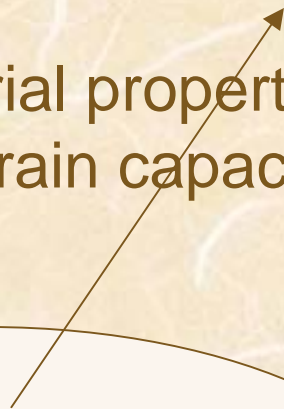
SC3 •Performance-based design scheme for ultimate limit state and serviceability limit state
•Quality control scheme for HFR

Specific material properties
e.g., tensile strain capacity

Durability quantification
e.g., crack width limit

Material characterization
by SC1

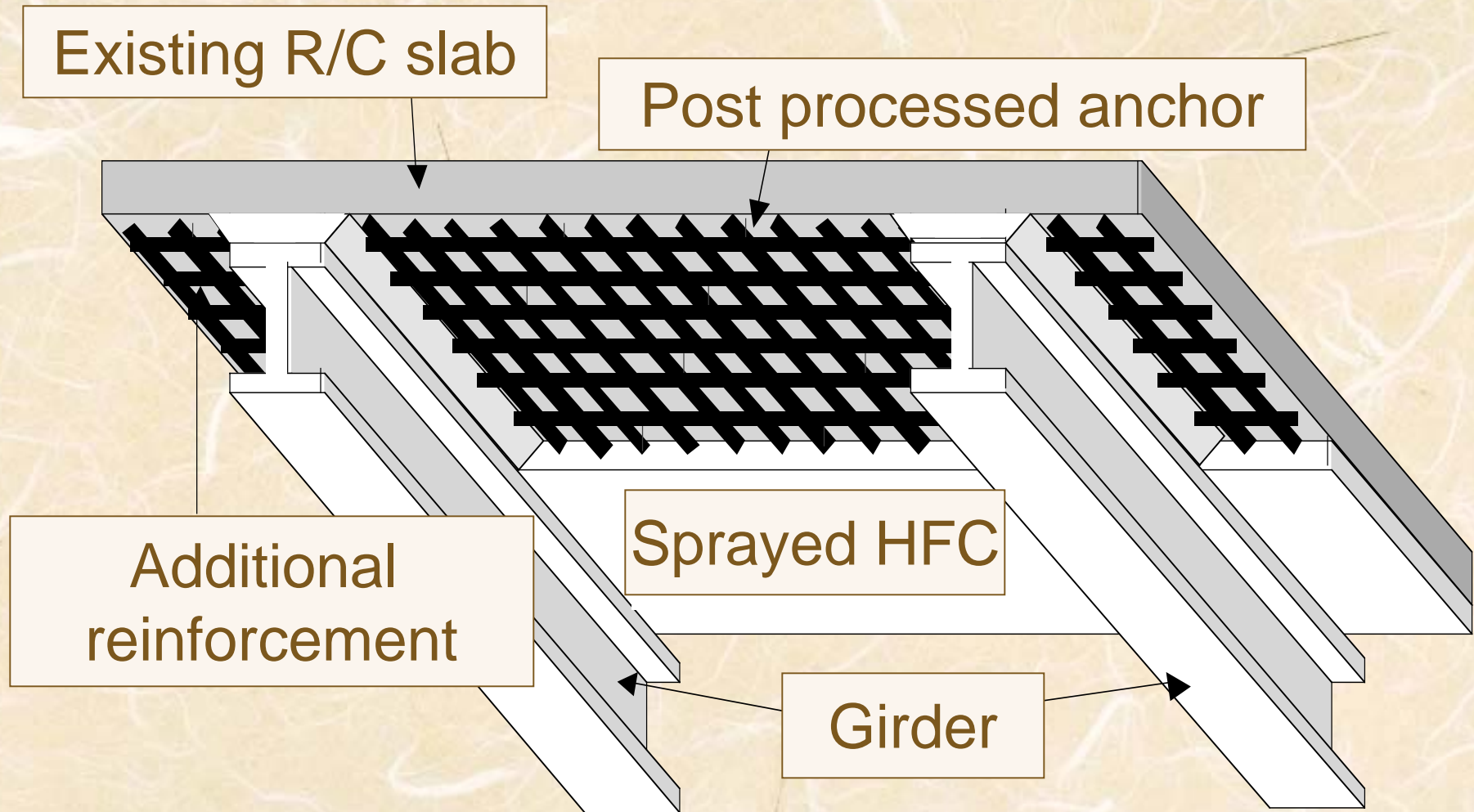
Durability clarification
by SC2



Expecting application

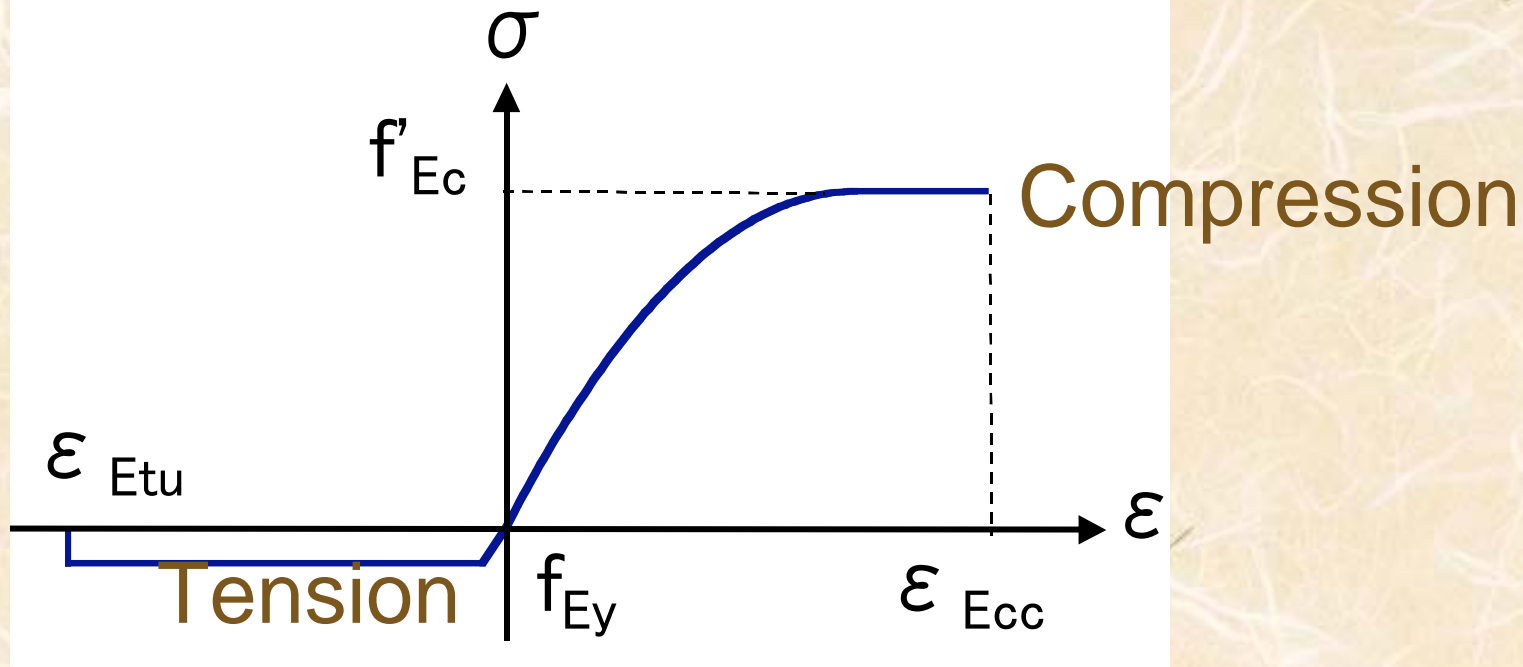
- Seismic resistant element in shear/flexural loading, e.g., short column
- Anti-fatigue element in flexural loading, e.g., bridge deck floor
- Retrofitting element in shear/flexural loading, e.g., under-layer strengthening for bridge deck
- Surface protection layer on existing structural elements for service life extension

Example of application



Under-layer strengthening of bridge deck

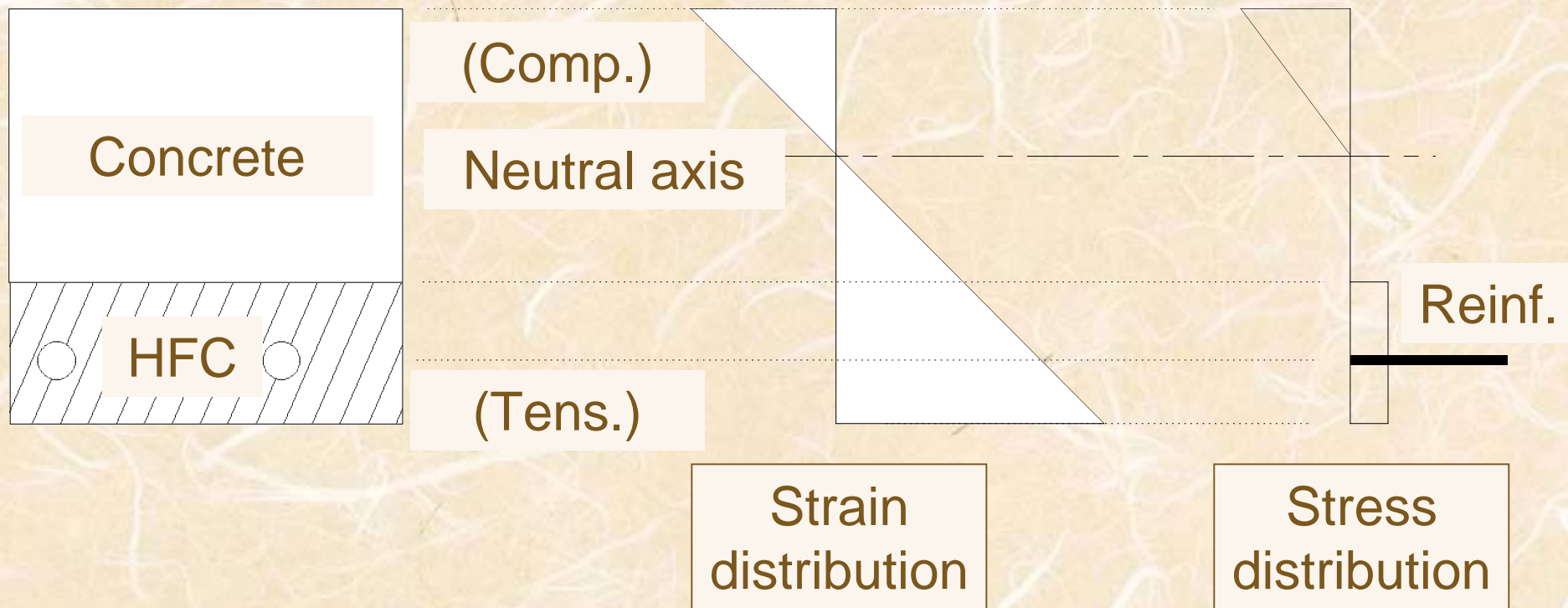
Assumed stress-strain relation and specified material property



Specified material properties necessary for design

- Compressive strength
- Elastic modulus
- Tensile strength
- Tensile strain capacity
- Crack opening displacement

Flexural section design accounting HFC property



Questions to be addressed in SC3 activity

- How to determine specified material properties in relation with the results of material characterization?
- How to secure the specified properties in daily application in construction?

Invitation to SC3

- Potential SC3 member
- Send e-mail to:
rk@cc.gifu-u.ac.jp or
kandat@kajima.com
- Necessary information
 - Your biographical sketch
 - How/what you can contribute to SC3

