Description of Additional Supplementary Files

File Name: Supplementary Movie 1
Description: Includes the animation of the CSH-PVA interface during molecular dynamics simulations.

File Name: Supplementary Movie 2
Description: Includes the animation of the CSH-PVA model during a uniaxial tensile process of molecular dynamics simulations.

File Name: Supplementary Movie 3
Description: Includes the animation of crack propagation and fracture of cement-hydrogel under three-point bending stress in the FEM simulation.

File Name: Supplementary Movie 4
Description: Includes the animation of crack propagation and fracture of cement paste under three-point bending stress in the FEM simulation.