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MCFT and Its Application on FRC Members

(수정압축장이론과 섬유보강콘크리트 부재에의 적용)

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In this research, an analytical model, the Modified Compression Field Theory (MCFT), is presented that is capable of predicting the load-deformation response of reinforced concrete elements subjected to multi-directional stresses. In the model, cracked reinforced concrete is treated as an orthotropic material based on a smeared, rotating crack model. Based on the MCFT, finite element formula tions are presented for the analysis of reinforced concrete membrane structures. In the FE formulation, secant stiffness moduli are defined for concrete and reinforcement, respectively. The nonlinear analysis procedure has been verified against test results of RC panels subjected to in-plane shear and test results of reinforced concrete beams subjected to significant shear. In order to reasonably predict the structural behaviour of SFRC members, the constitutive models for SFRC members have been developed in this research. The proposed models have been verified through the test results obtained from the extensive experimental program conducted by the authors' research group. In addition, with the consideration of the combined effect with steel fibers and conventional rebars, the MCFT has been expanded to predict the structural behaviour of SFRC members with conventional rebars (R/SFRC). Based on the proposed models, it was investigated that the structural behaviour of R/SFRC members could be reasonably predicted. The proposed models and analysis procedure can be useful an application of SFRC as a structural member.

School of Urban & Environmental Engineering

- **When :** 2019.12.12. (Thu) 16:00
- **Where:** Bldg.110 (EB4), Room.1007
- **Host :** Prof. : Lee, Young Joo
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