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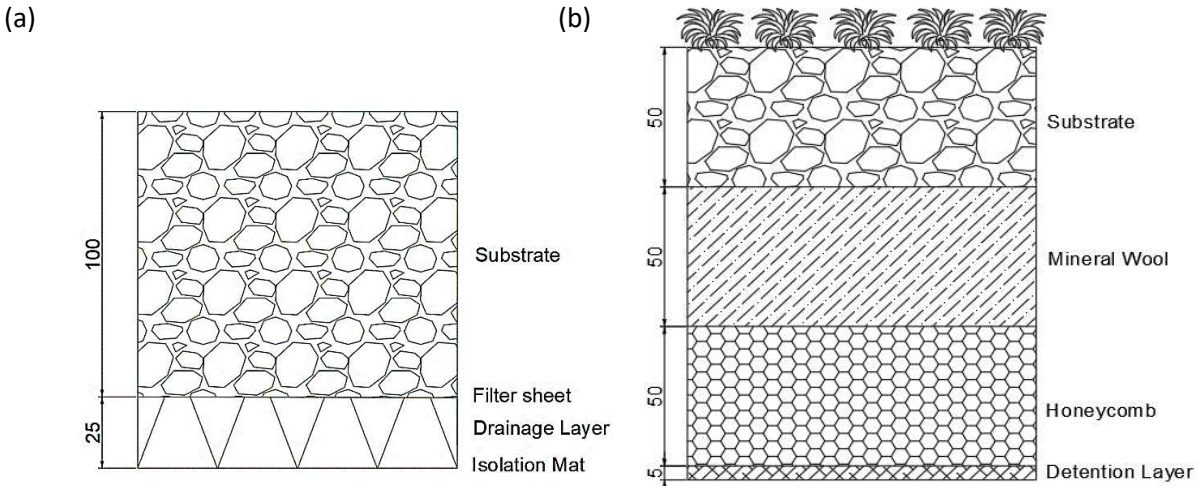

Fig. 1. Configurations of the two green roof systems; (a) conventional green roof system; (b) innovative green roof system (all dimensions in mm).

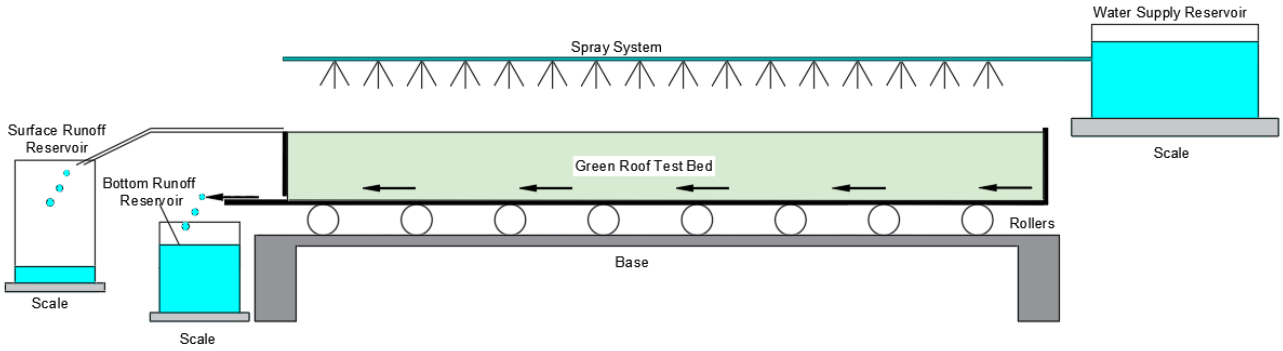

Fig. 2. Experimental set-up for the detention tests with the detention layer and the innovative green roof system.

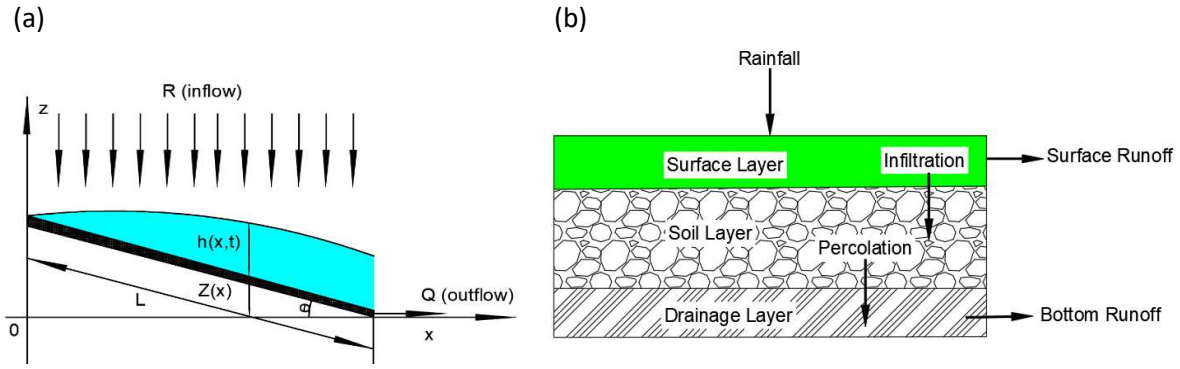

Fig. 3. Schematic diagrams of model representations; (a) representation of horizontal flow in the drainage layer (physically-based model); (b) representation of vertical water flux in green roof systems (SWMM green roof module model).

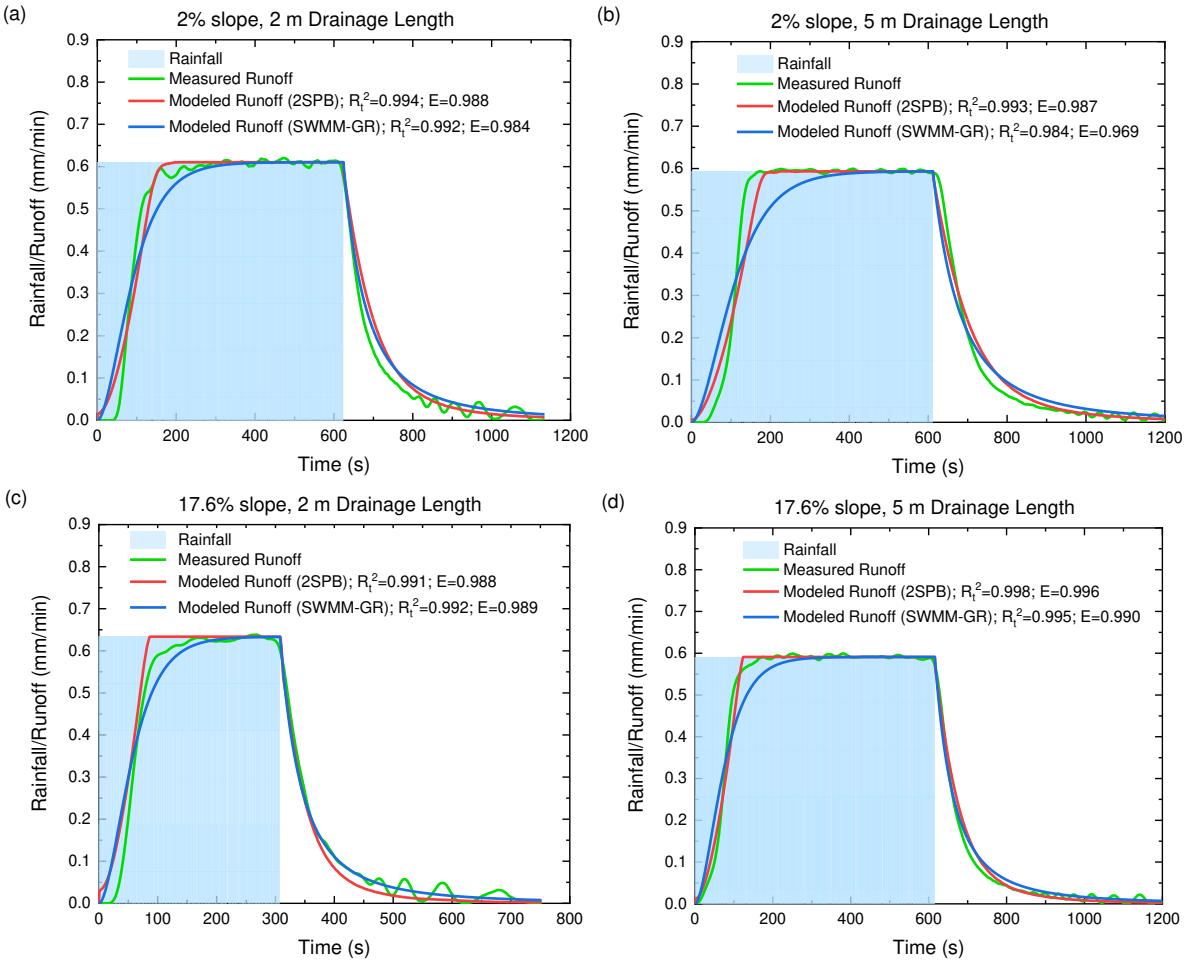

Fig. 4. Measured and modeled runoff from the FD-25 drainage layer (drainage layer used in the conventional green roof system).

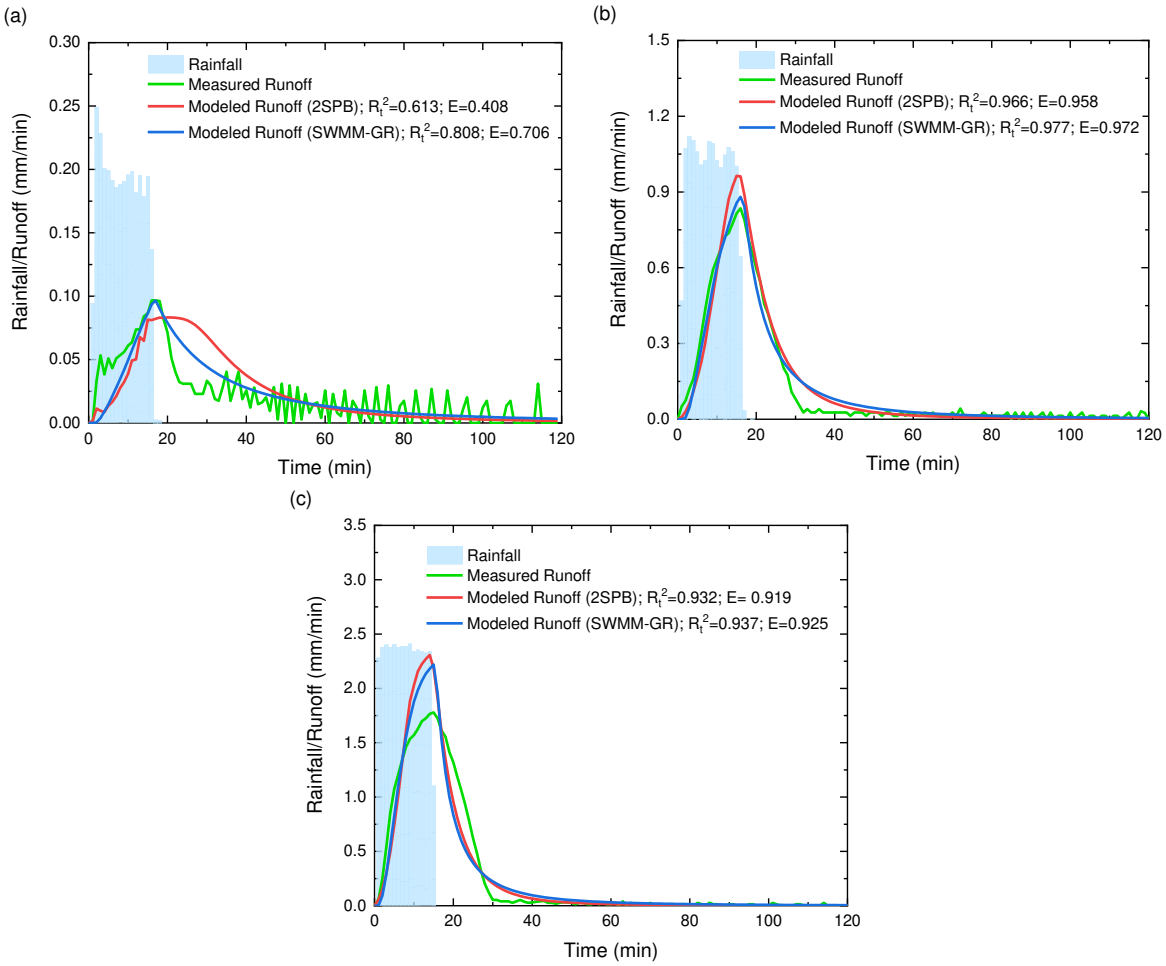

Fig. 5. Measured and modeled runoff from the detention layer (the bottom layer used in the innovative green roof system).

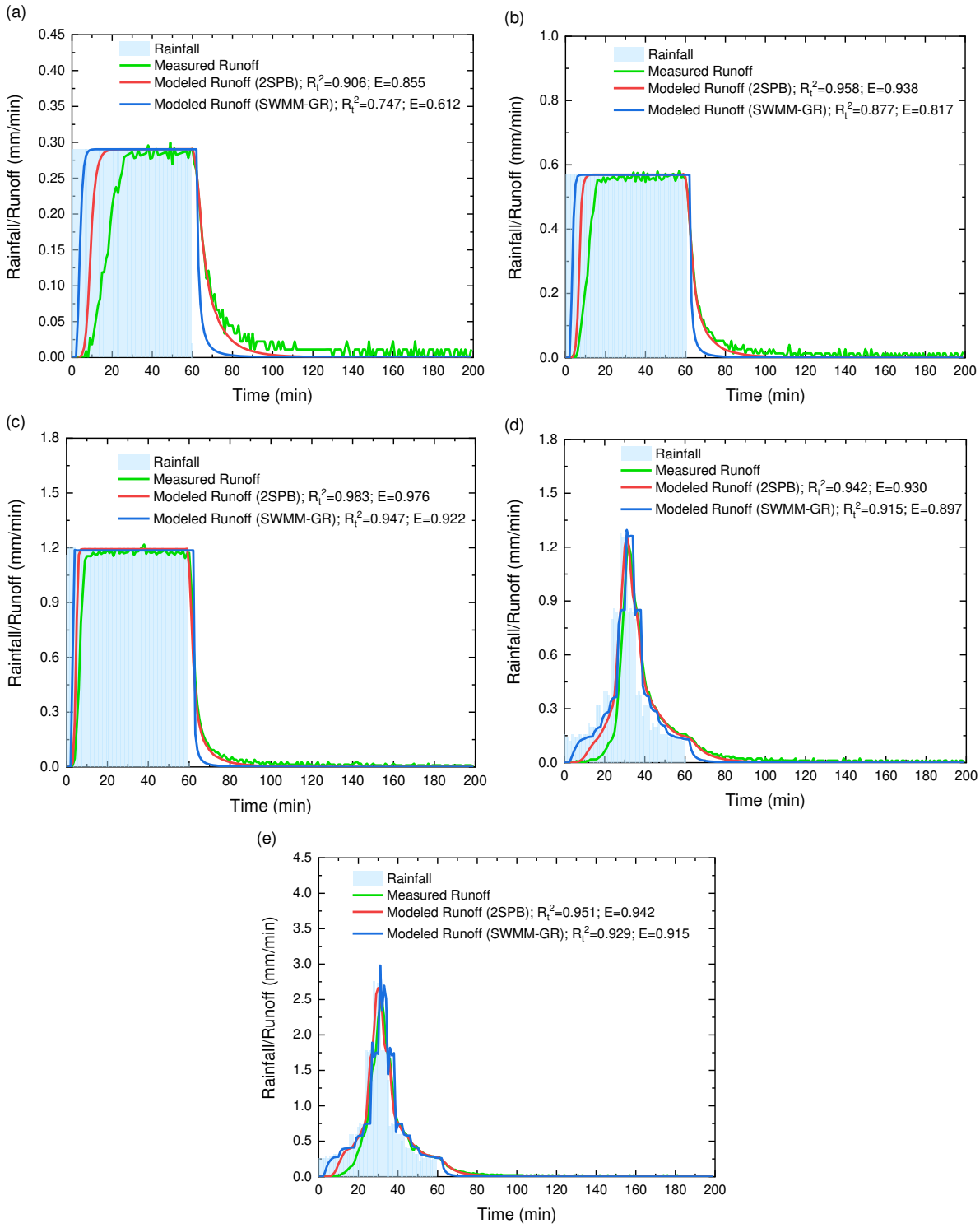

Fig. 6. Measured and modeled runoff from the complete conventional green roof system using the identified parameters from the drainage layer isolated detention tests.

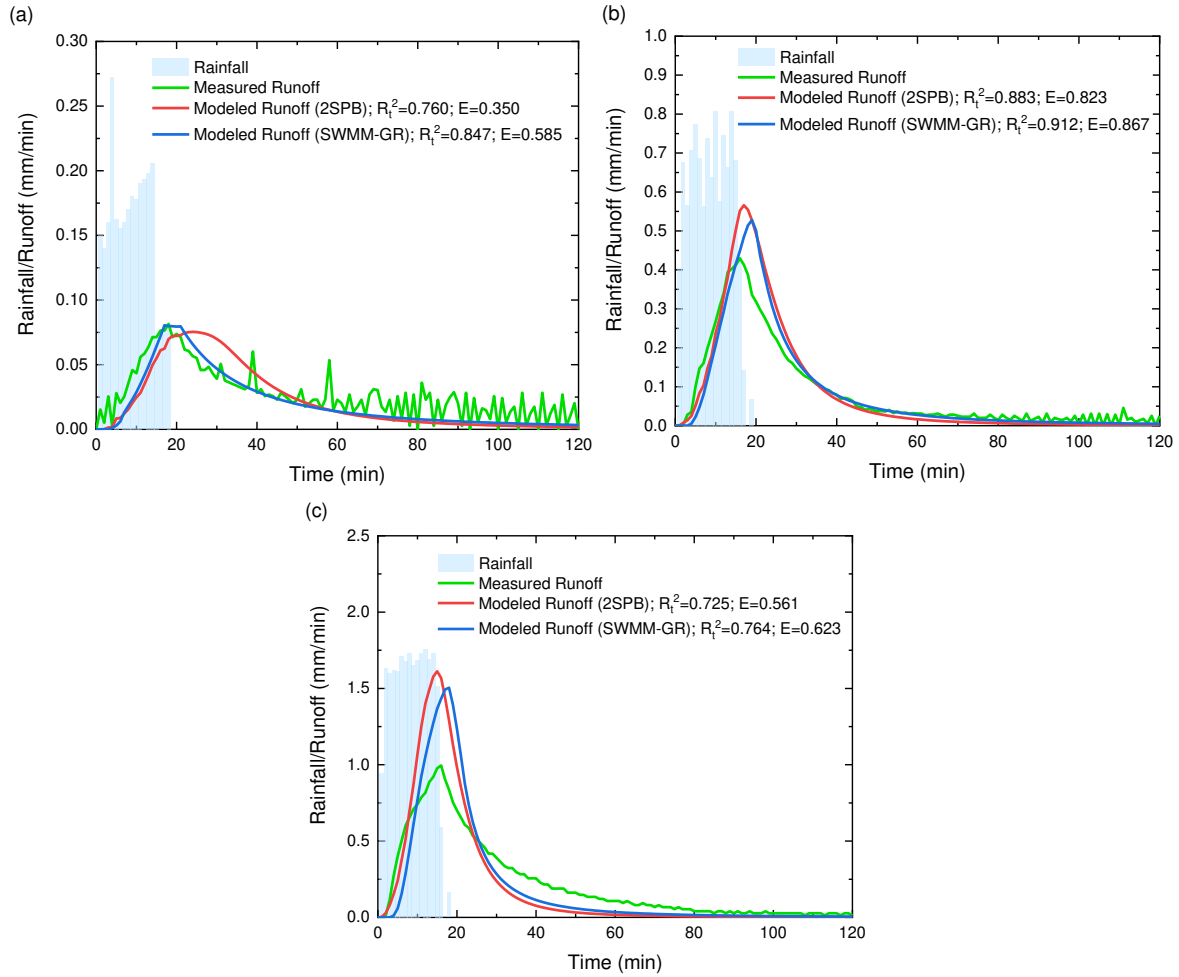

Fig. 7. Measured and modeled runoff from the complete innovative green roof system using the identified parameters from the detention layer isolated detention tests.

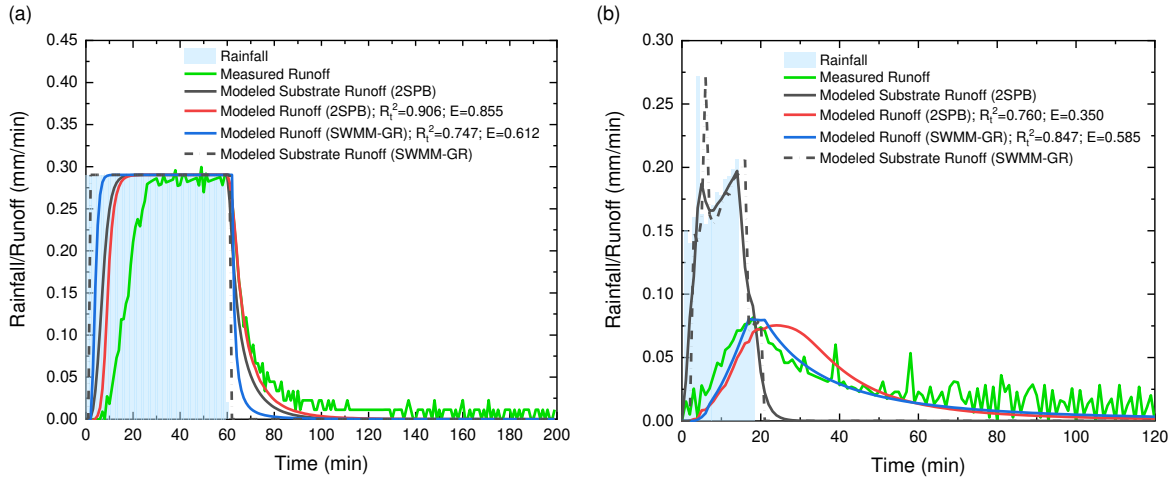

Fig. 8. Measured and modeled substrate and bottom runoff from the two green roof systems using the calibrated parameters; (a) conventional green roof system; (b) innovative green roof system.