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**Article:**

Peng, Z. [orcid.org/0000-0003-3918-4479](https://orcid.org/0000-0003-3918-4479), Garner, B. and Stovin, V. [orcid.org/0000-0001-9444-5251](https://orcid.org/0000-0001-9444-5251) (2022) Two green roof detention models applied in two green roof systems. *Journal of Hydrologic Engineering*, 27 (2). 04021049. ISSN 1084-0699

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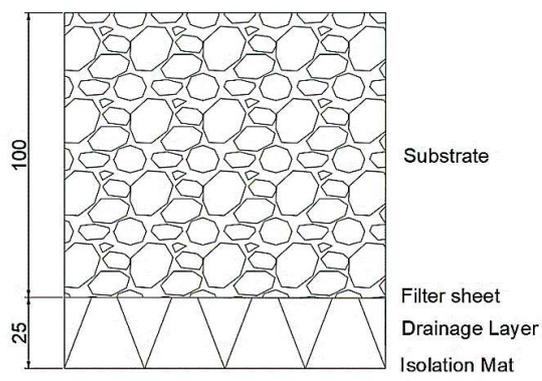
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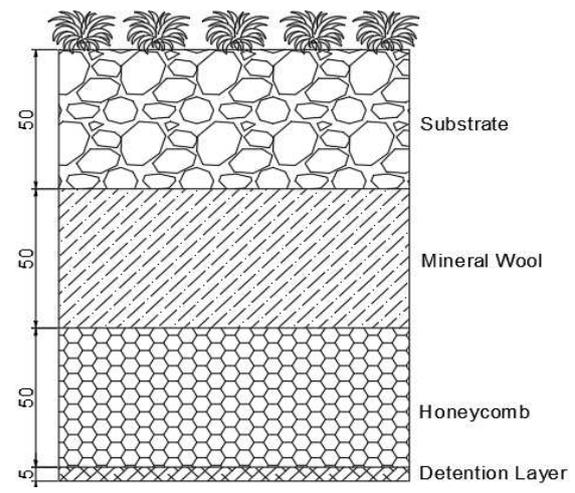


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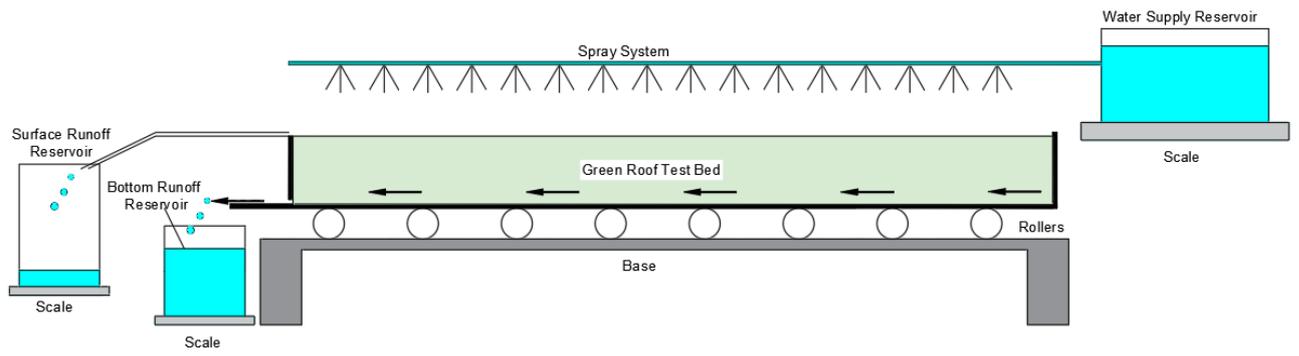
(a)



(b)

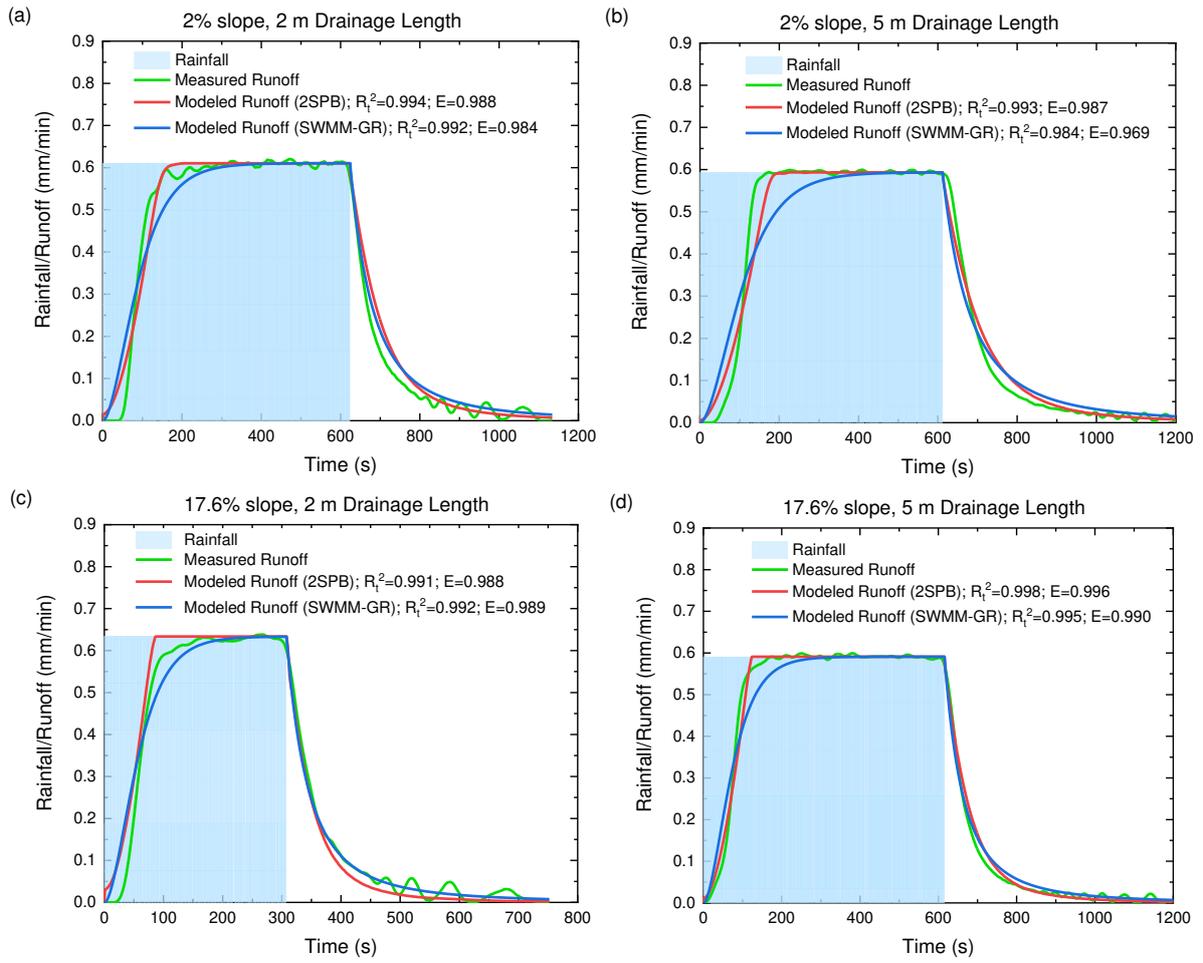


**Fig. 1.** Configurations of the two green roof systems; (a) conventional green roof system; (b) innovative green roof system (all dimensions in mm).

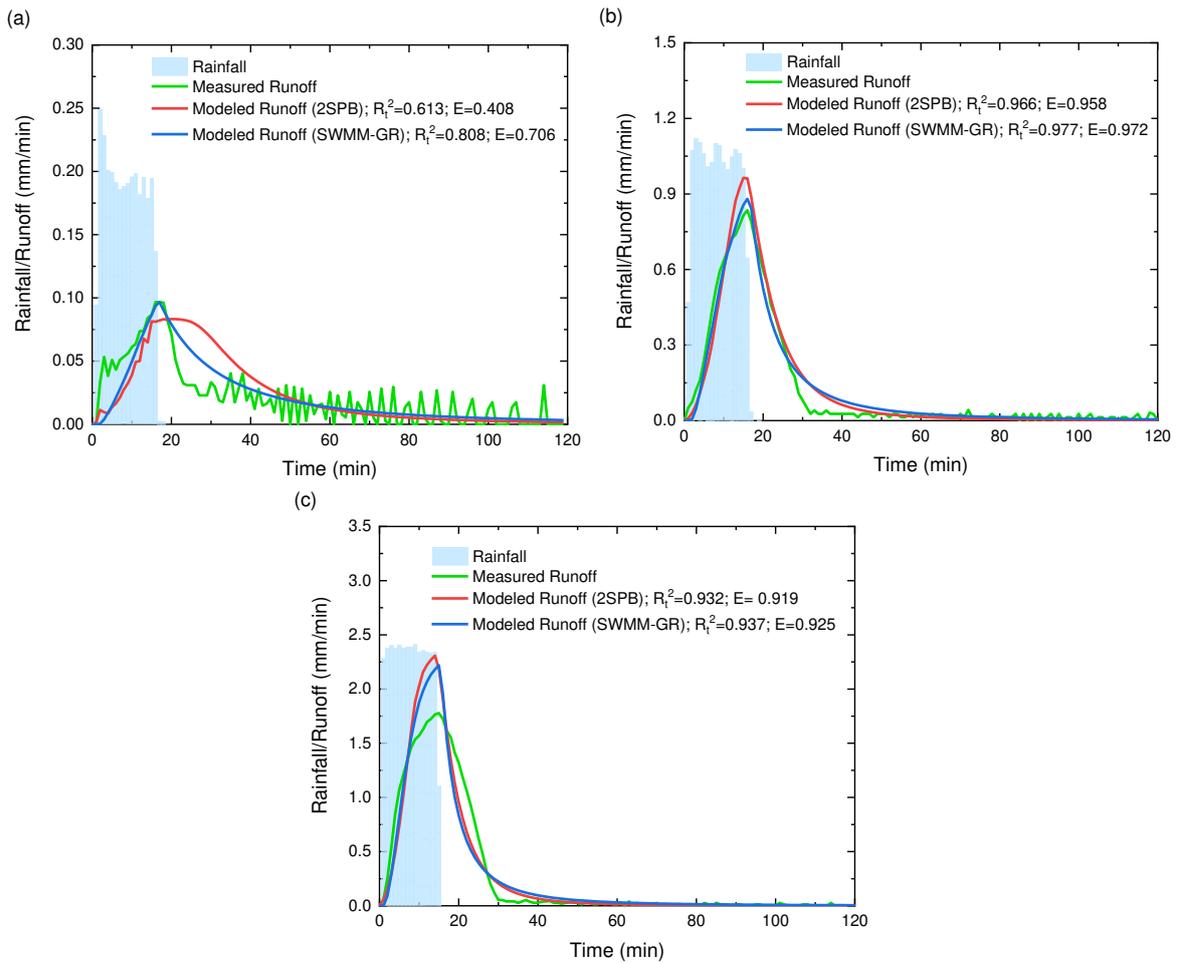


**Fig. 2.** Experimental set-up for the detention tests with the detention layer and the innovative green roof system.

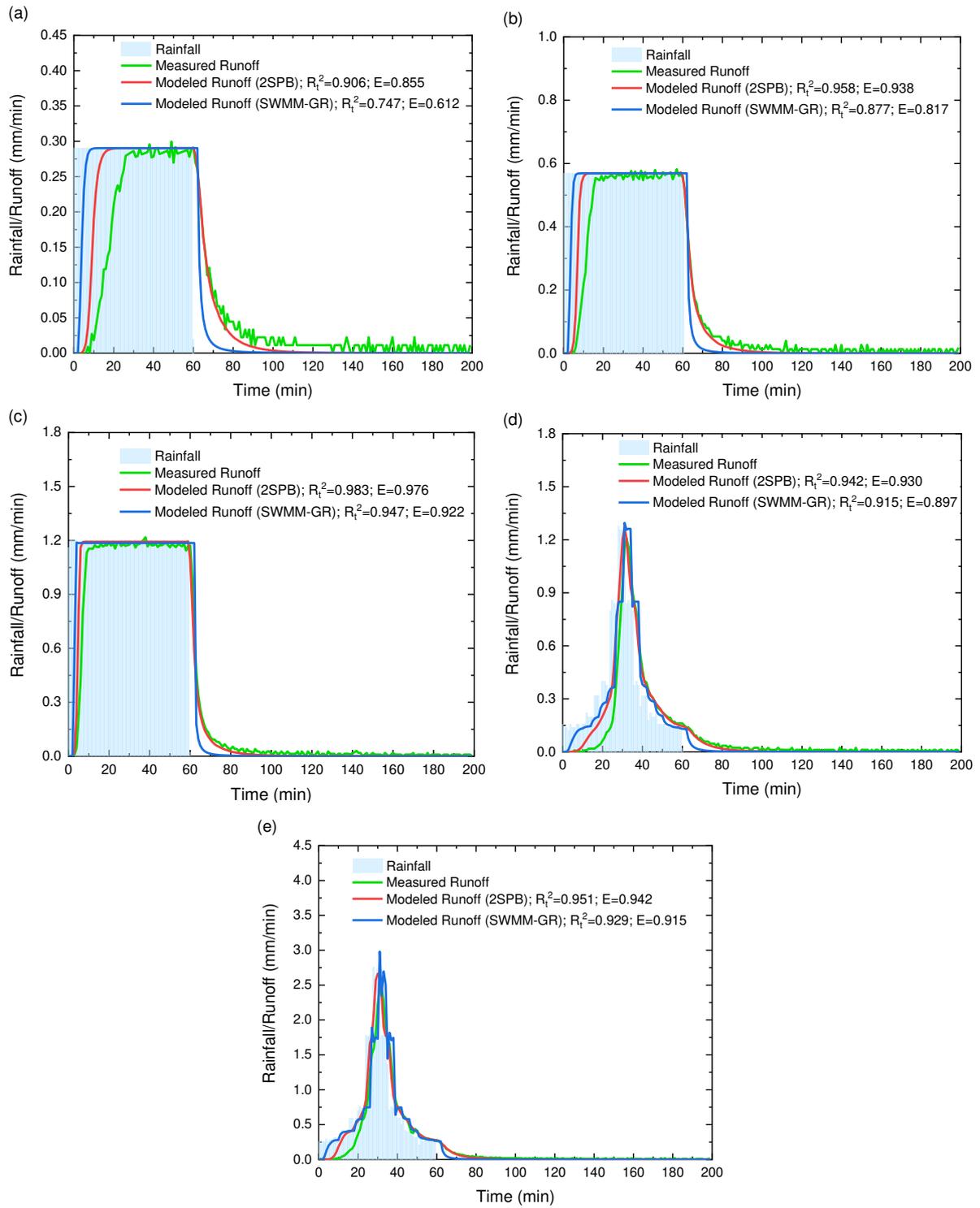




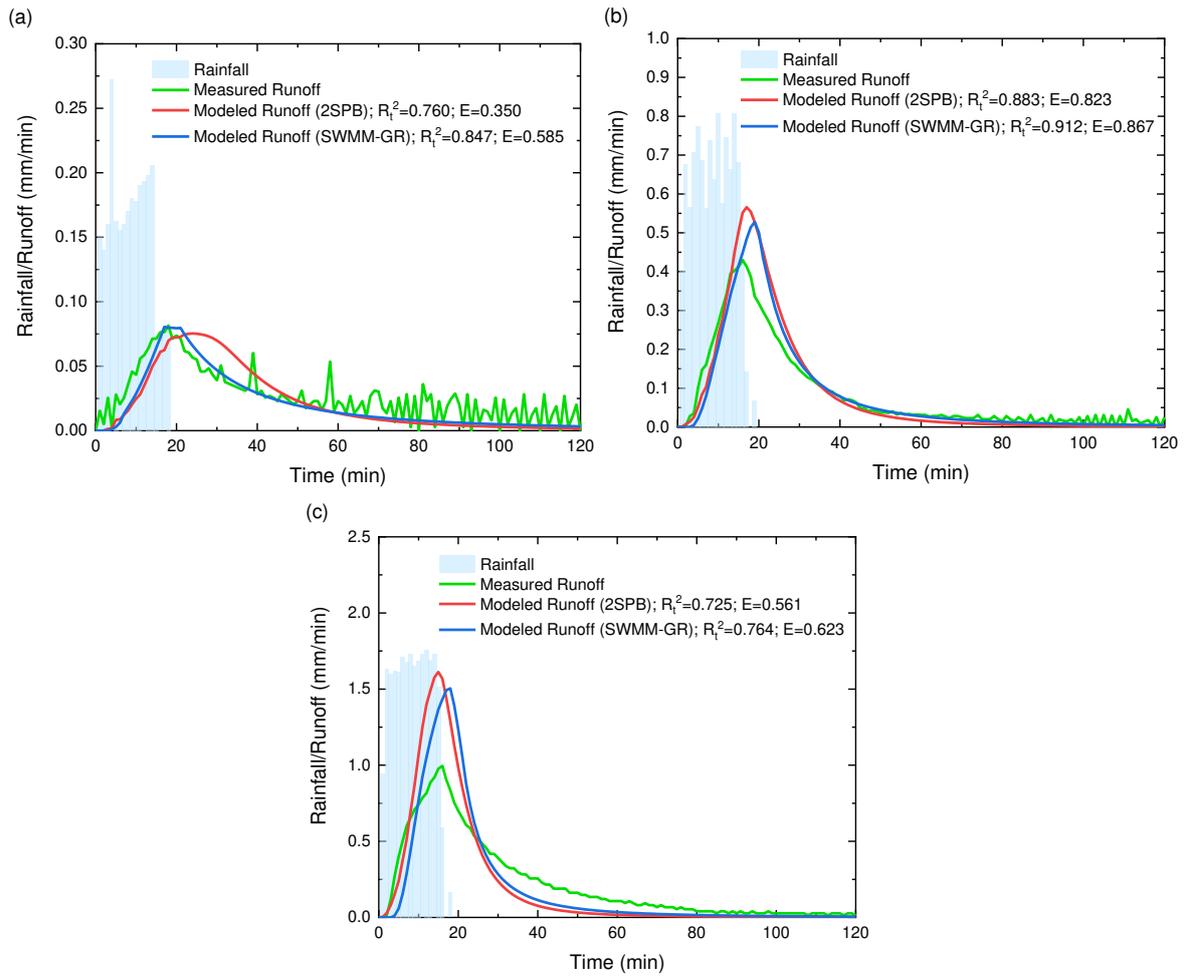
**Fig. 4.** Measured and modeled runoff from the FD-25 drainage layer (drainage layer used in the conventional green roof system).



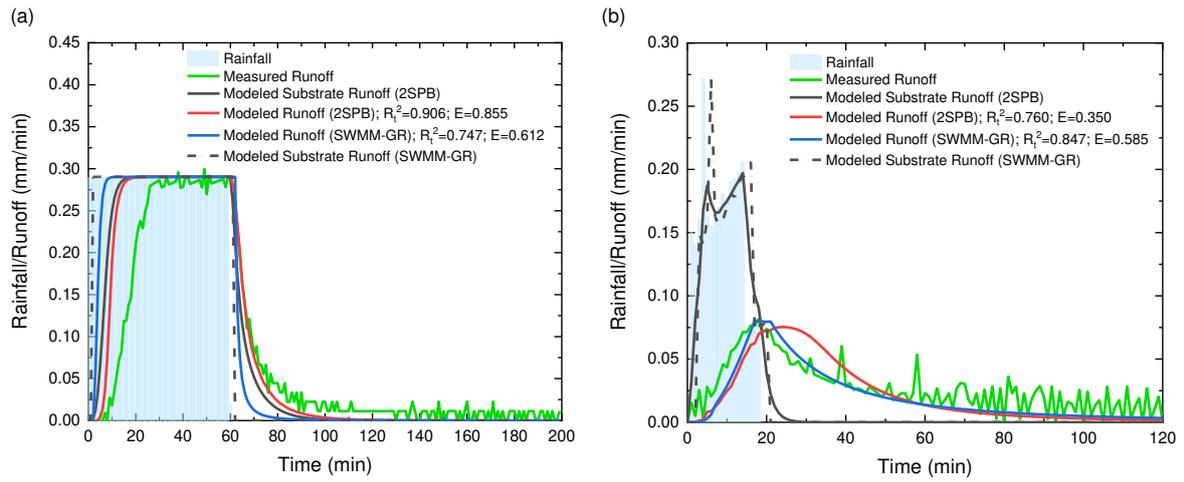
**Fig. 5.** Measured and modeled runoff from the detention layer (the bottom layer used in the innovative green roof system).



**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.