Article:
Peng, Z. orcid.org/0000-0003-3918-4479, Garner, B. and Stovin, V. 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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Table 1. Value of parameters for the two-stage physically-based (2SPB) model.

	Parameter	Conventional Green Roof	Innovative Green Roof
System configuration	Length	5 m	6.1 m
	System slope	2%	2%
Substrate layer	θ_s	0.552[a]	0.513[b]
	θ_r	0.042[a]	0.119[b]
	α_1	0.304[a]	0.108[b]
	n_1	2.820[a]	2.344[b]
	α_2	5.094E-04[a]	0.002b
	n_1	1.926[a]	2.834[b]
	w_1	0.622[a]	0.579[b]
	K_s	166.4 mm/min[a]	14.7 mm/min[b]
	θ_1	0.23[a]	-
	θ_2	0.33[a]	-
	γ_1	-1.5495[a]	-
	γ_2	-10.33[a]	-
	γ_3	-23.339[a]	-
	β_1	5.019[a]	-
	β_2	31.66[a]	-
	β_3	88.2267[a]	-
	Initial moisture content (θ_{FC})	0.33[a]	0.38[b]
	Depth	100 mm	50 mm
Drainage/detention layer	Manning's n	**0.0012[b]**	**0.017[b]**
	Initial water storage	0	0

[a] Values for MCS substrate, as proposed in Peng et al. (2020).
[b] Values from independent material characterisation tests described in this paper.

Table 2. Value of parameters for the SWMM green roof LID control (SWMM-GR) model.

	Parameter	Conventional Green Roof	Innovative Green Roof
System Configuration	W_1	1 m	1.1 m
	A_1	5 m^2	6.71 m^2
	S_1	0.02	0.02
Surface layer	$\emptyset_1$	0	0
	D_1	0	0
	n_s	0.1	0.1
	φ_2	50	50
Substrate layer	K_s	166.4 mm/min[a]	14.7 mm/min[b]
	D_2	100 mm	50 mm
	Soil wilting point	0.01	0.01
	$\emptyset_2$	0.552[a]	0.513[b]
	θ_{FC}	0.34[a]	0.38[b]
	HCO	20[b]	25.59[b]
	Initial substrate saturation	64.10%	72.55%
Drainage/detention layer	n_3	**0.0578[b]**	**0.952[b]**
	$\emptyset_3$	0.5	0.5
	D_3	25 mm	55 mm
	Initial water storage	0	0

[a] Values for MCS substrate, as proposed in Peng et al. (2020).
[b] Values from independent material characterisation tests described in this paper.

Table 3. Identified Manning's n and Roughness Coefficient for the FD-25 drainage layer.

Slope	Drainage Length	Manning's n	Roughness Coefficient
2%	2 m	0.0022	0.1090
2%	5 m	0.0012	0.0578
17.60%	2 m	0.0025	0.1542
17.60%	5 m	0.0018	0.0914