Supporting Information

One-step process for superhydrophobic metallic surfaces by wire electrical discharge machining

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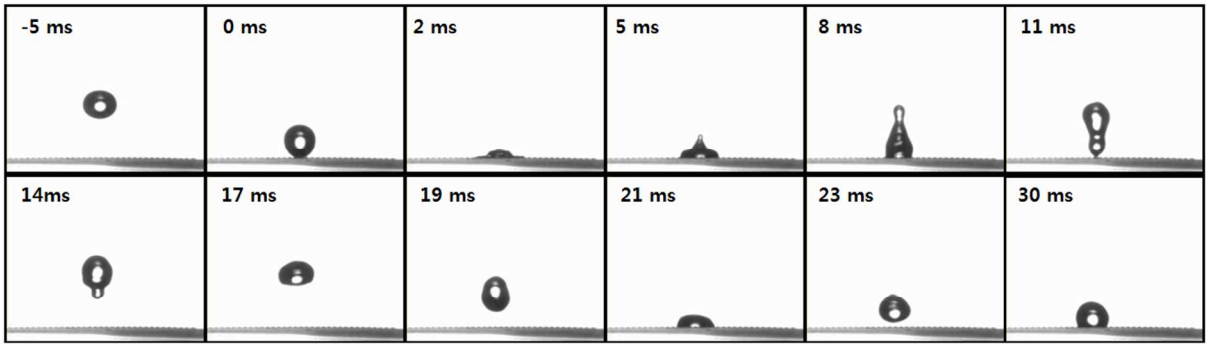

Figure S1. Snapshots of high-speed camera images of a bouncing water droplet on the fabricated superhydrophobic metal substrate in **Figure 1C** (λ = 500 μm, 1st cutting).

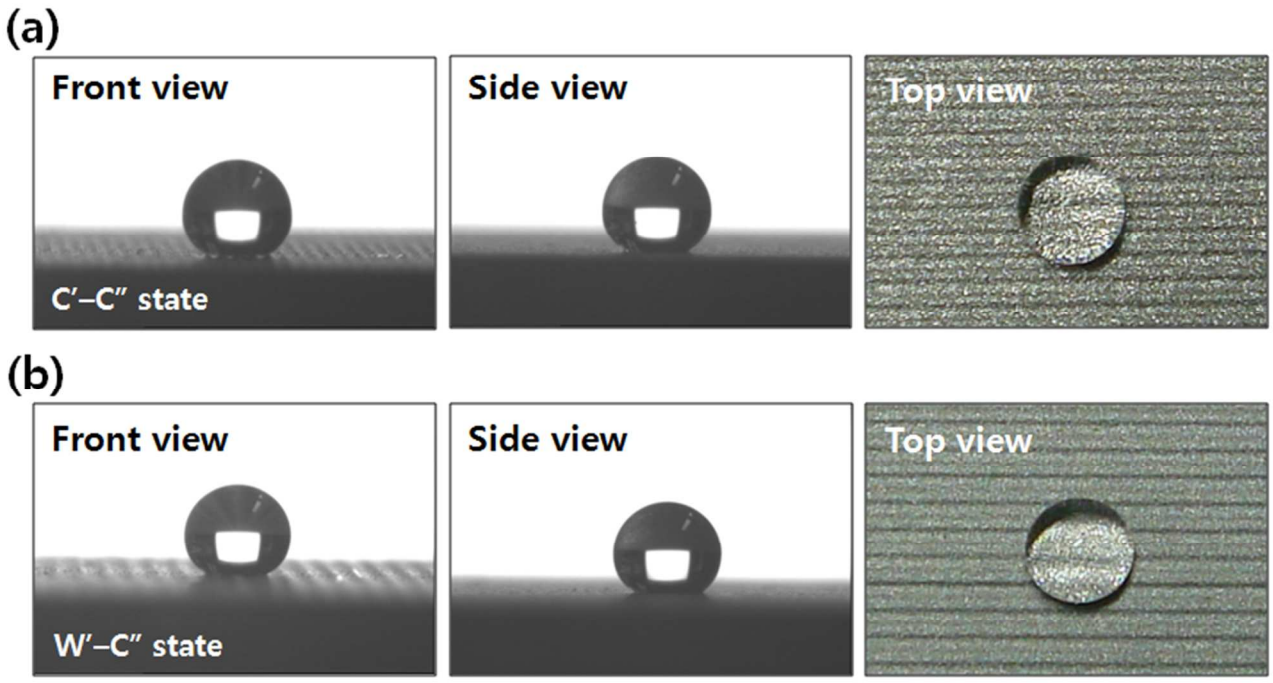

Figure S2. Optical images of water droplets on fabricated metallic surfaces with (a) C'-C" and (b) W'-C" states. In the C'-C' state, the CAs are nearly the same when viewed from the front and the side. On the other hand, in the W'-C" state, the CAs show a slight difference (less than 5°) in the two directions.

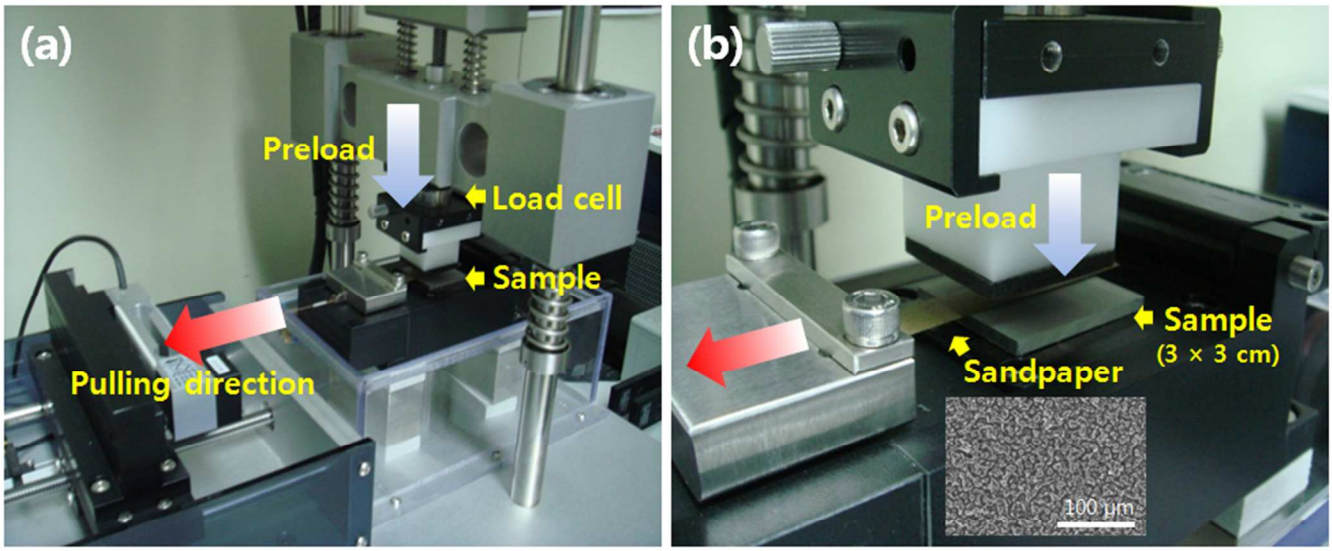

Figure S3. Optical images of the custom-built equipment for the scratching experiment: (a) A P3000 sandpaper (mean particle diameter: 7 μm, 1 cm in width) was placed on the fabricated dual-roughness surface and pressed under a controlled preload (~3 N/cm^2). Then the sandpaper was pulled to induce a scratch. (b) This magnified image show the location and surface profile of the P3000 sandpaper.

Table S1. WEDM process conditions used in the experiment.

WEDM Step	Positive voltage[v]	Negative voltage[v]	Current[A]	Positive duration	Negative duration	Roughness [Ra]	Roughness factor
1st Cut	+126 V	-80 V	150 A	28 μs	50 μs	4.16 μm	1.44
2nd Cut	+106 V	-80 V	42 A	30 μs	50 μs	2.37 μm	1.33
3rd Cut	+106 V	-76 V	12 A	14 μs	20 μs	0.94 μm	1.23
4th Cut	+84 V	-74 V	6 A	15 μs	20 μs	0.41 μm	1.13