Electronic supplementary materials

for https://doi.org/10.1631/jzus.A2200226

Effect of morphological gene mutation and decay on energy dissipation behaviour of granular soils

Wei XIONG[1], Qi-min ZHANG[1], Jian-feng WANG[1,2]✉

[1]*Department of Architecture and Civil Engineering, City University of Hong Kong, Hong Kong, China*

[2]*Shenzhen Research Institute of City University of Hong Kong, Shenzhen 518057, China*

✉ Jian-feng WANG, jefwang@cityu.edu.hk

Table S1 Morphology descriptors

Group	Descriptor	Formula	Definition
General form	Elongation	$E=\frac{I}{L}$	Ratio of the second principal dimension (I) over the first principal dimension (L)
	Flatness	$F=\frac{S}{I}$	Ratio of the third principal dimension (S) over the second principal dimension
	Aspect ratio	$AR=\frac{E+F}{2}$	The mean value of elongation and flatness
Local roundness	Roundness	$R=\frac{\sum R_{\mathrm{c}}}{n_{\mathrm{c}}\times R_{\mathrm{insc}}}$	Ratio of all corner curvature radii (R_{c}) to the largest inscribed sphere radius (R_{insc})
Overall shape parameter	Sphericity	$S=\sqrt[3]{\frac{36\pi V^2}{S_{\mathrm{A}}}}$	Ratio of the surface area (S_{A}) of a sphere with the same volume (V) as the given particle to surface area of this particle
	Convexity	$C_x=\frac{V}{V_{\mathrm{CH}}}$	Ratio of particle volume over its convex hull volume (V_{CH})