Supplementary material:

Impacts of environmental factors on the formation and development of biological soil crusts in lime concrete materials of building facades

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This supplementary material contains 8 pages, 5 Figures and 2Tables.

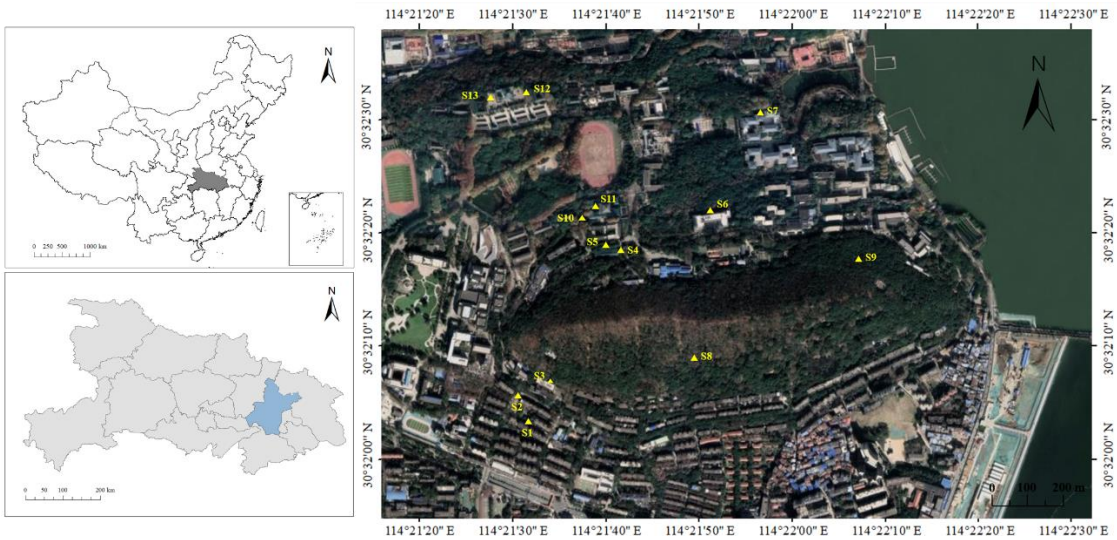

Figure S1. Location of sampling sites.

Figure S2. Biofilms on the facades of the early architecture of Wuhan University.

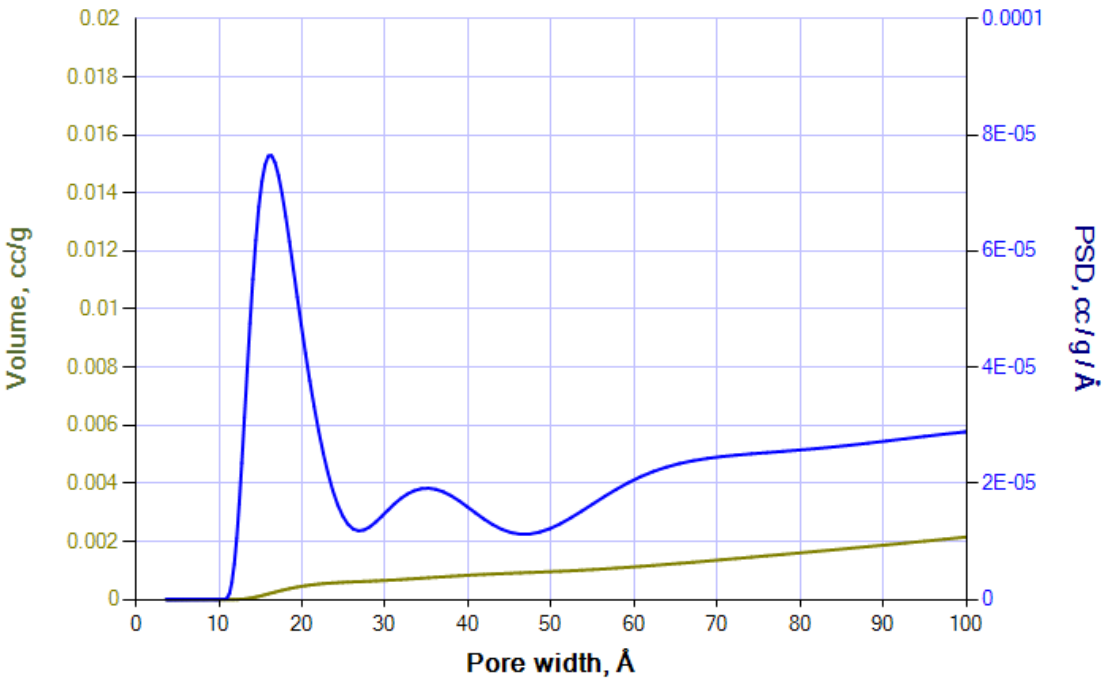

Figure S3. Pore volume and pore size distribution of lime concrete.

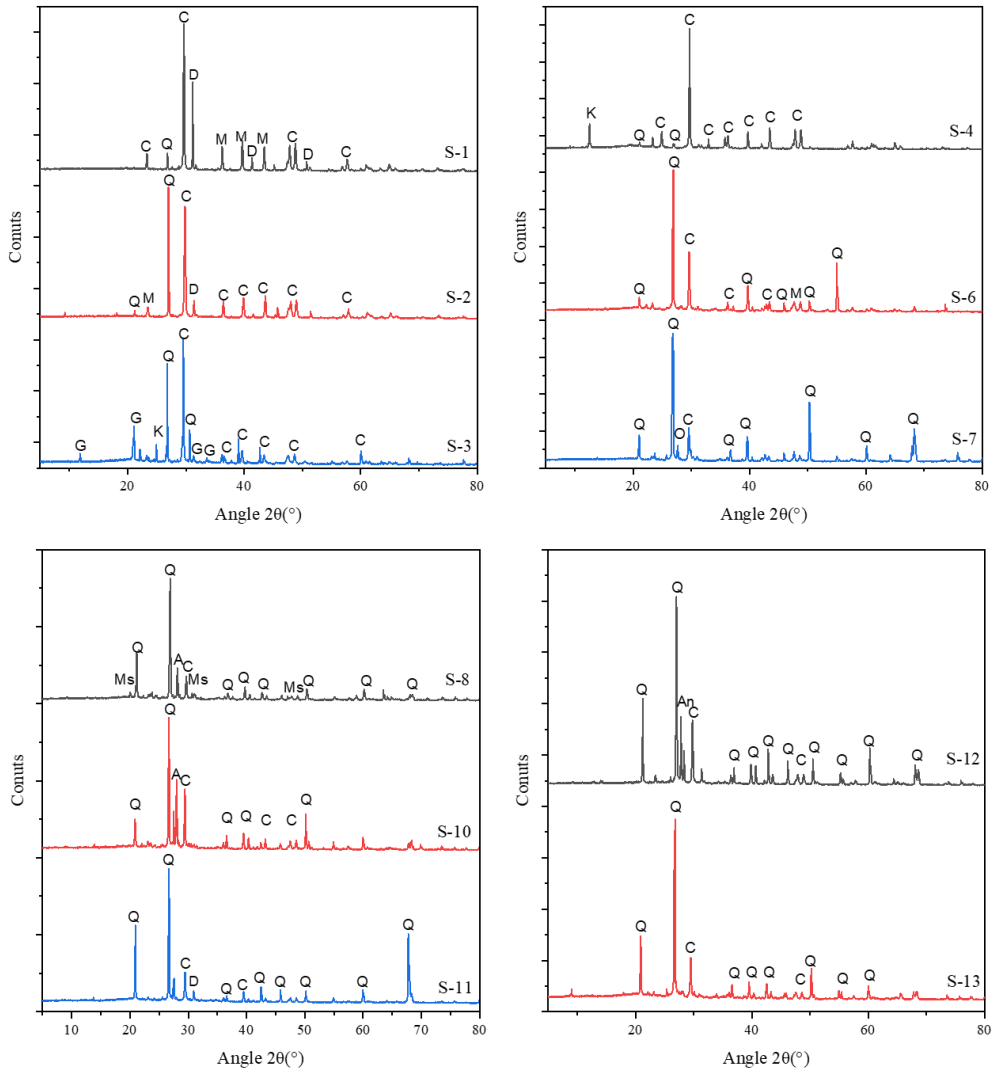

Figure S4. XRD diffractograms of the construction materials; Q: quartz; C: calcite; M: calcite, magnesian; A: albite; D: dolomite; K: kaolinite; G: gypsum; O: orthoclase; Ms: muscovite; An: anorthite.

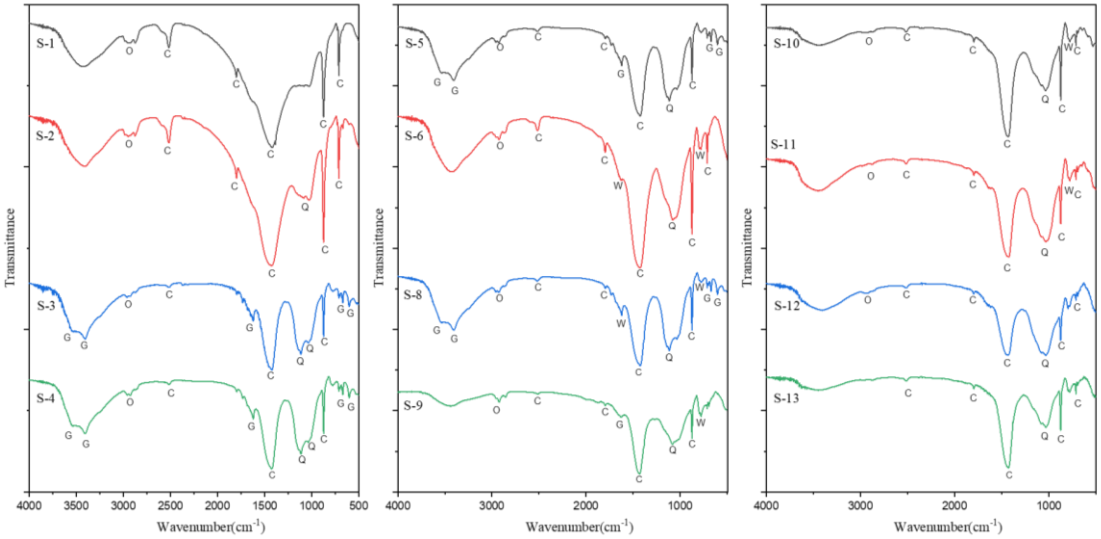

Figure S5. FTIR analysis of the construction materials; Q: quartz; C: calcite; G: gypsum; O: organic compounds; W: whewellite.

Table S1. Details of the historical constructions and surrounding environmental factors.

Sample	Heritage	Completion Date	Relative humidity	Temperature /°C	Shading
S-1	East of Li Da's former residence	1952	75.0±6.4%	23.1±2.1	84.82±4.34%
S-2	North of Li Da's former residence	1952	79.1±3.8%	21.9±0.5	90.10±1.86%
S-3	Eighteen villa complexes-3#	1931	80.7±2.4%	22.1±0.8	97.59±1.27%
S-4	East of the Wuhan University Archives	1936	74.0±1.5%	24.0±2.6	86.28±5.80%
S-5	North of the Wuhan University Archives	1936	66.3±2.5%	24.8±3.0	90.16±5.43%
S-6	Former residence of Weng Shouqian	1895	60.7±0.7%	25.0±0.4	64.59±2.41%
S-7	Church of Canossian Sisters of Charity	1888	62.3±1.5%	24.9±0.9	76.79±6.63%
S-8	Eighteen villa complexes-10#	1931	64.6±6.1%	27.4±2.7	89.94±4.29%
S-9	Mapping Field Observatory	1956	66.3±1.1%	26.8±1.0	95.46±0.15%
S-10	West of Administration Building	1936	70.6±3.7%	23.9±1.3	91.97±2.19%
S-11	North of Administration Building	1936	62.8±2.0%	24.3±2.9	86.99±2.85%
S-12	East of the old library	1935	60.0±1.8%	26.1±1.1	75.28±1.99%
S-13	West of the old library	1935	55.3±5.9%	29.6±4.0	66.01±3.01%

Table S2. Primer sets used in this study for bacteria, fungi, cyanobacteria, moss, and eukaryotic photoautotroph.

Population	Primers	Sequence (5'-3')
Bacteria	EUB 338	ACTCCTACGGGAGGCAGCAG
	EUB 518	ATTACCGCGGCTGCTGG
Fungi	NL1f	ATTCCCAAACAACTCGACTC
	LS2r	ATTCCCAAACAACTCGACTC
Cyanobacteria	CYA 359F	5′-GGGGAATYTTCCGCAATGGG-3′
	CYA 781A	5′-GACTACTGGGGTATCTAATCCCATT-3′
	CYA 781B	5′-ACTACAGGGGTATCTAATCCCTTT-3′
Moss	rps5′	5′-ATGTCCCGTTATCGAGGACCT-3′
	trnS	5′- TACCGAGGGTTCGAATC-3′
Eukaryotic photoautotroph	p23SrV-F	5′-GGACAGAAAGACCCTATGAA-3′
	p23SrV-R	5′-TCAGCCTGTTATCCCTAGAG-3′