**Supplementary Material**

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| Supplementary Fig. S1 Installation status of the measured instruments | |
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| Supplementary Fig. S2 Spatial and temporal distribution of air temperature at the study site measured in the square | Supplementary Fig. S3 Overall change in air temperature by time of day at the Plaza | |

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| Supplementary Fig. S4 Variation of spatial and temporal distribution of humidity at the plaza real measurement study site | Supplementary Fig. S5 Overall change of humidity in the square at each time |

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| Supplementary Fig. S6 Variation of spatial and temporal distribution of wet bulb temperature in the plaza real study site | Supplementary Fig. S7 Overall change in wet bulb temperature at the plaza by time of day |

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| Supplementary Fig. S8 Variation of the spatial and temporal distribution of wind speed at the study site measured in the square | Supplementary Fig. S9 Overall change in wind speed by time of day at the square |

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| Supplementary Fig. S10 Variation of temperature difference between study sites at various times in the square | Supplementary Fig. S11 Variation of humidity difference at the study site by time of the square |

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| Supplementary Fig. S12 Variation of wet bulb temperature difference at the study site by time of the plaza | Supplementary Fig. S13 Variation of wind speed difference at the study site for each time period in the square |

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| Supplementary Fig. S14 Equivalent physiological model of the elderly at the study site |

Supplementary Table 1. Status of the study site landscape

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| Observation Point Number | Observation Point Name | Environmental Characteristics |
| 1 | Sand Pool Square | Hardscape space, primarily a thoroughfare with gatherings occasionally held on both sides |
| 2 | Sand Pit | Recreational space with fitness equipment but no greenery, flanked by hardscaped plaza walkways |
| 3 | Tree Array Square | Features tree rows and two large square water pools with fountains and seating areas |
| 4 | South Central Small Plaza | Equipped with fitness facilities on both sides, sunken spaces to the east and west, with restrooms on the west side |
| 5 | Tree Pit Square | Contains two rows of landscaped flowers, facing Zhengyang West Road, with wooden benches |
| 6 | North Central Small Plaza | Symmetrical space with two large white sand pits on each side |
| 7 | Great Lawn | Open lawn with clear views, stone-paved paths, and scattered ornamental structures |
| 8 | Fitness Green Space | Scattered fitness equipment and tall trees throughout the space |
| 9 | Rest Area Green Space | Large grass area with three benches on the west side, permeable concrete pavement |
| 10 | Playground Green Space | Grass-covered surface with scattered trees, permeable concrete paving surrounding fitness equipment |
| 11 | Children's Playground | Features two slides with extensive hardscaping and a large shrub area to the north with limited shade |

Supplementary Table 2. Basic conditions of the weather for the actual measurement and research

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| Weather Conditions of Civic Square Survey (Government Affairs District) | | | | | | |
| Survey Date | 2010.9.23 (Wednesday) | 2010.9.24 (Thursday) | 2010.9.25 (Friday) | 2020.10.11 (Sunday) | 2020.10.12 (Monday) | 2020.10.13 (Tuesday) |
| Weather Condition | Sunny | Cloudy | Cloudy | Sunny | Cloudy | Sunny |
| Daytime Temperature | 15-25℃ | 16-27℃ | 17-27℃ | 14-23℃ | 15-22℃ | 14-21℃ |
| Wind Speed and Direction | East wind, 1-2 levels | Northeast wind, 1-2 levels | East wind, 1-2 levels | East wind, 3 levels | East wind, 1-2 levels | East wind, 1-2 levels |
| Measurement Time | 8：00-18：00 | 8：00-18：00 | 8：00-18：00 | 8：00-18：00 | 8：00-18：00 | 8：00-18：00 |

Supplementary Table 3. Details of microclimate measurement instruments

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| Measurement Parameter | Instrument Model | Range | Accuracy |
| Air Temperature | GM 1365 Thermometer | -30-80℃ | ±0.1℃ |
| Relative Humidity | GM 1365 Thermometer | 0-100℃ | ±1.2-1.7℃ |
| Wet Bulb Globe Temperature | Kestrel 5500 | -30-80℃ | ±0.1℃ |
| Wind Speed | Kestrel 5500 | 0-40m/s | 0.1m/s |