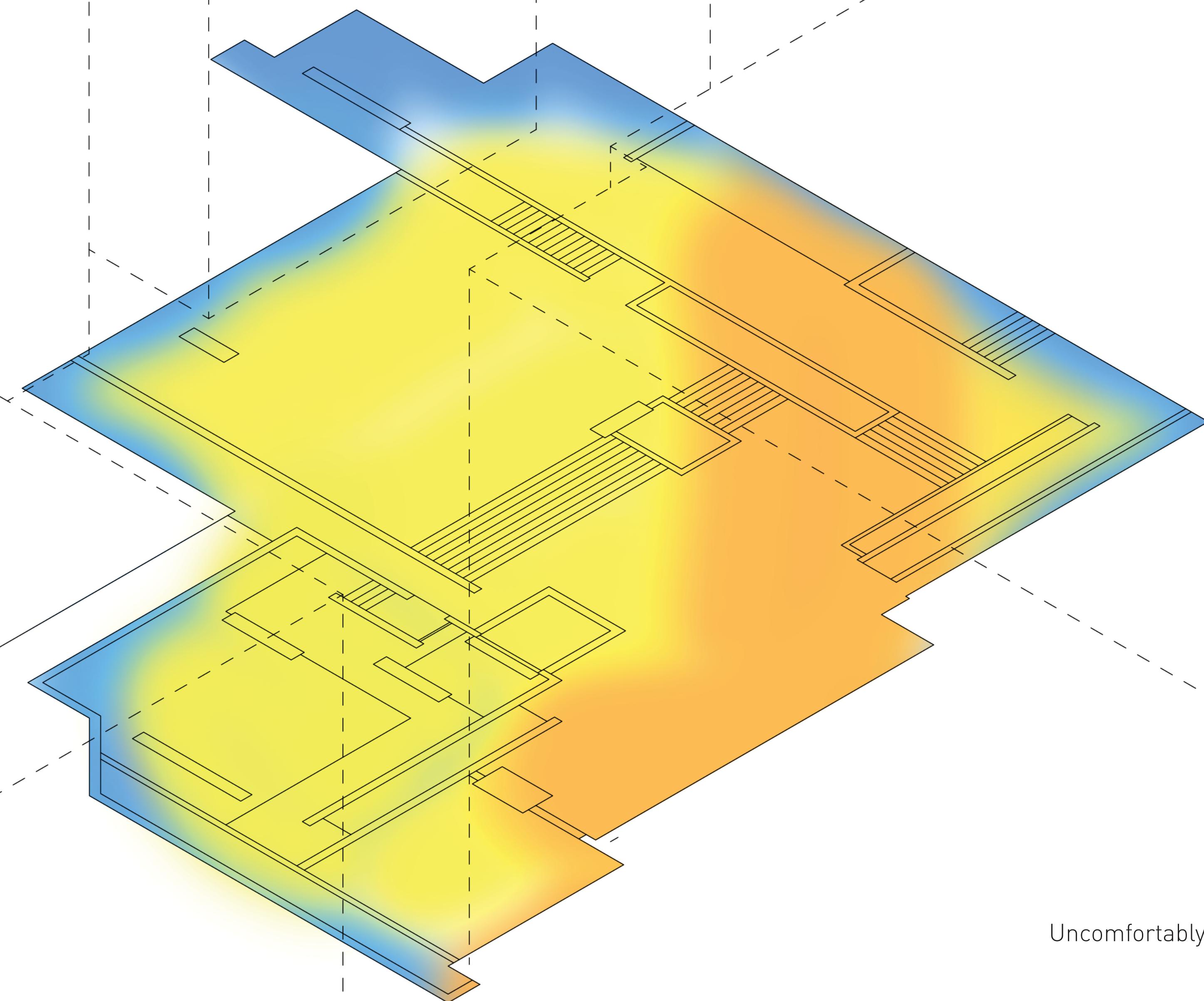


OUTDOOR THERMAL COMFORT STUDIES
GROUP 01 | JUSTINE HUANG + KATHERINE LANSKI + LOGAN WEAVER

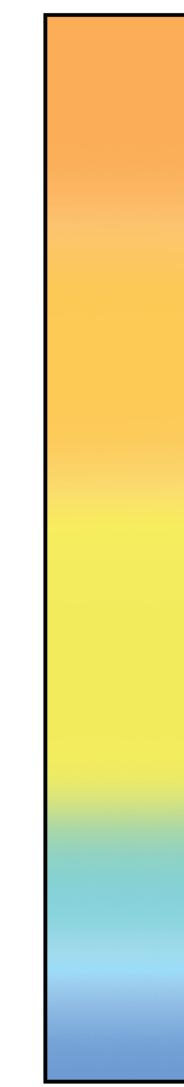


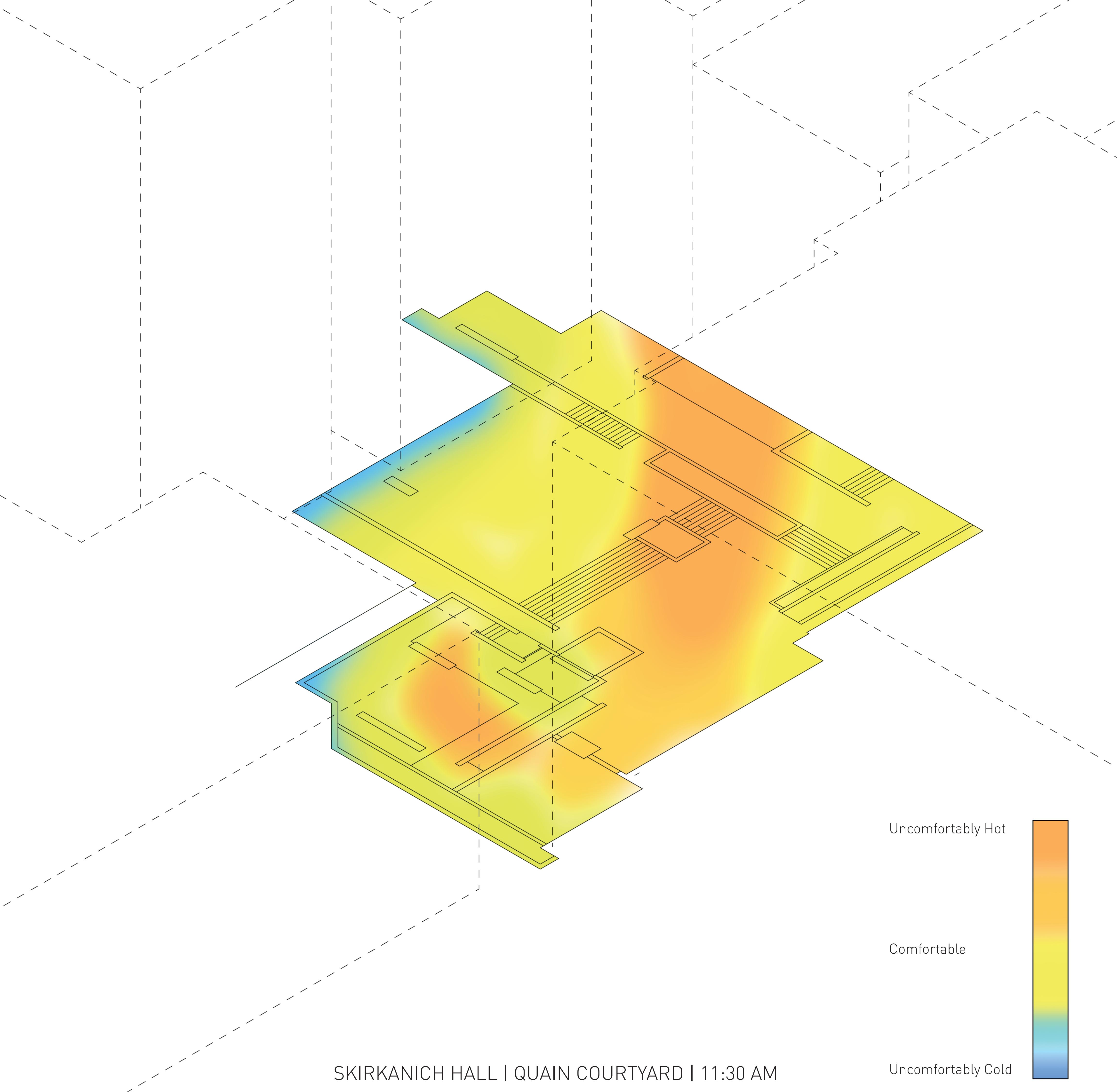
SKIRKLAND HALL | QUAIN COURTYARD | 10:30 AM

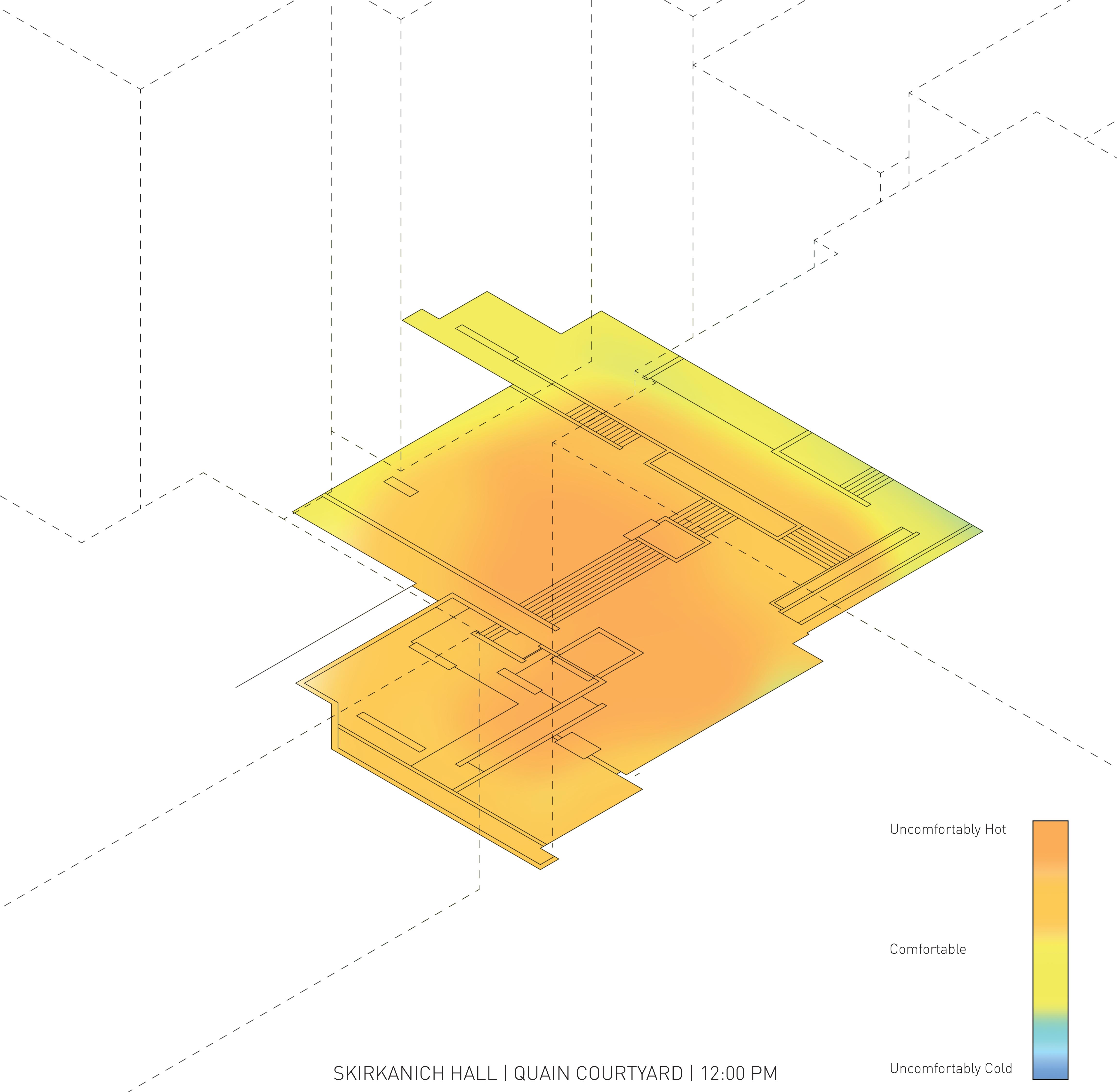
Uncomfortably Hot

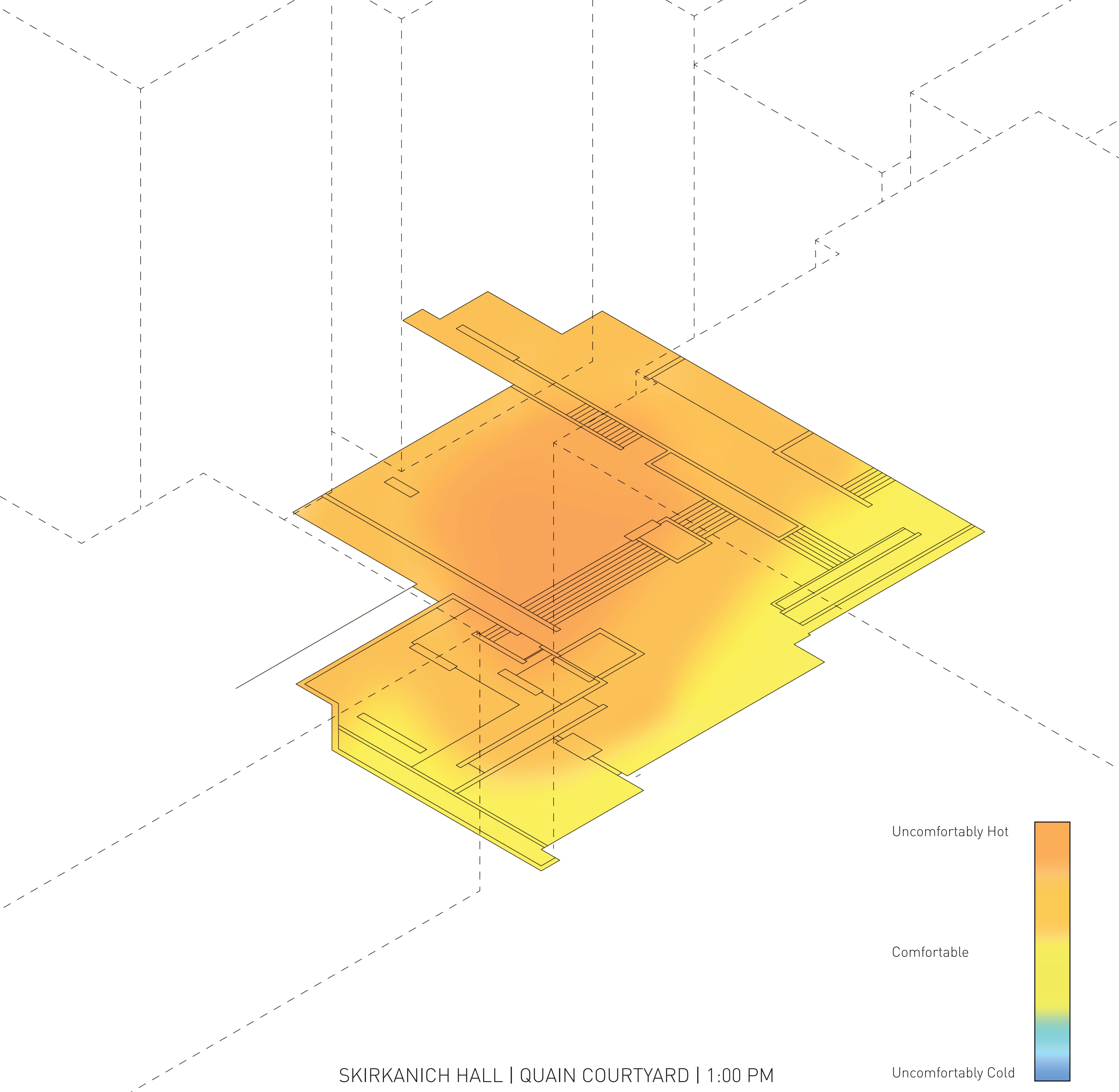
Comfortable

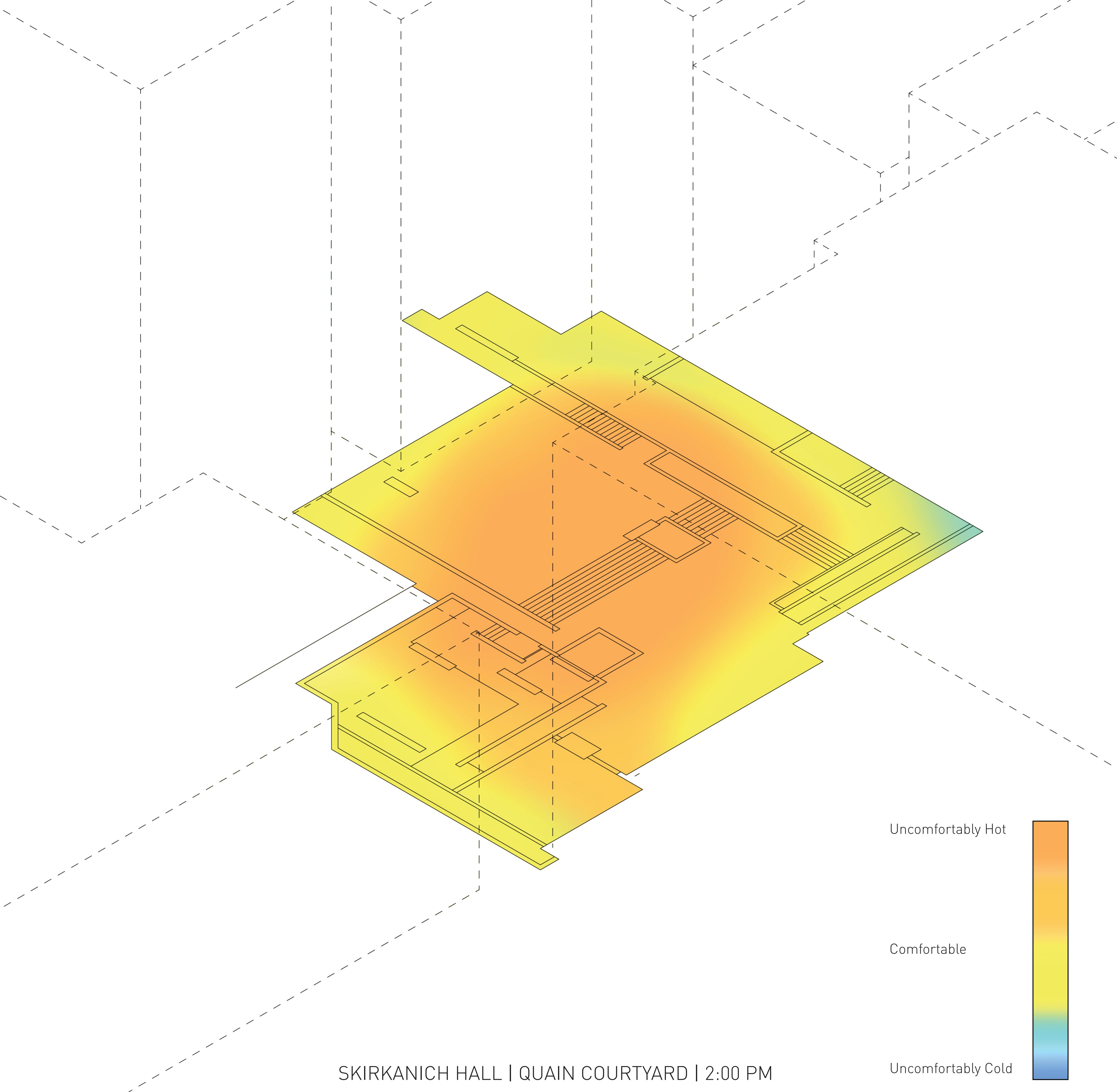
Uncomfortably Cold

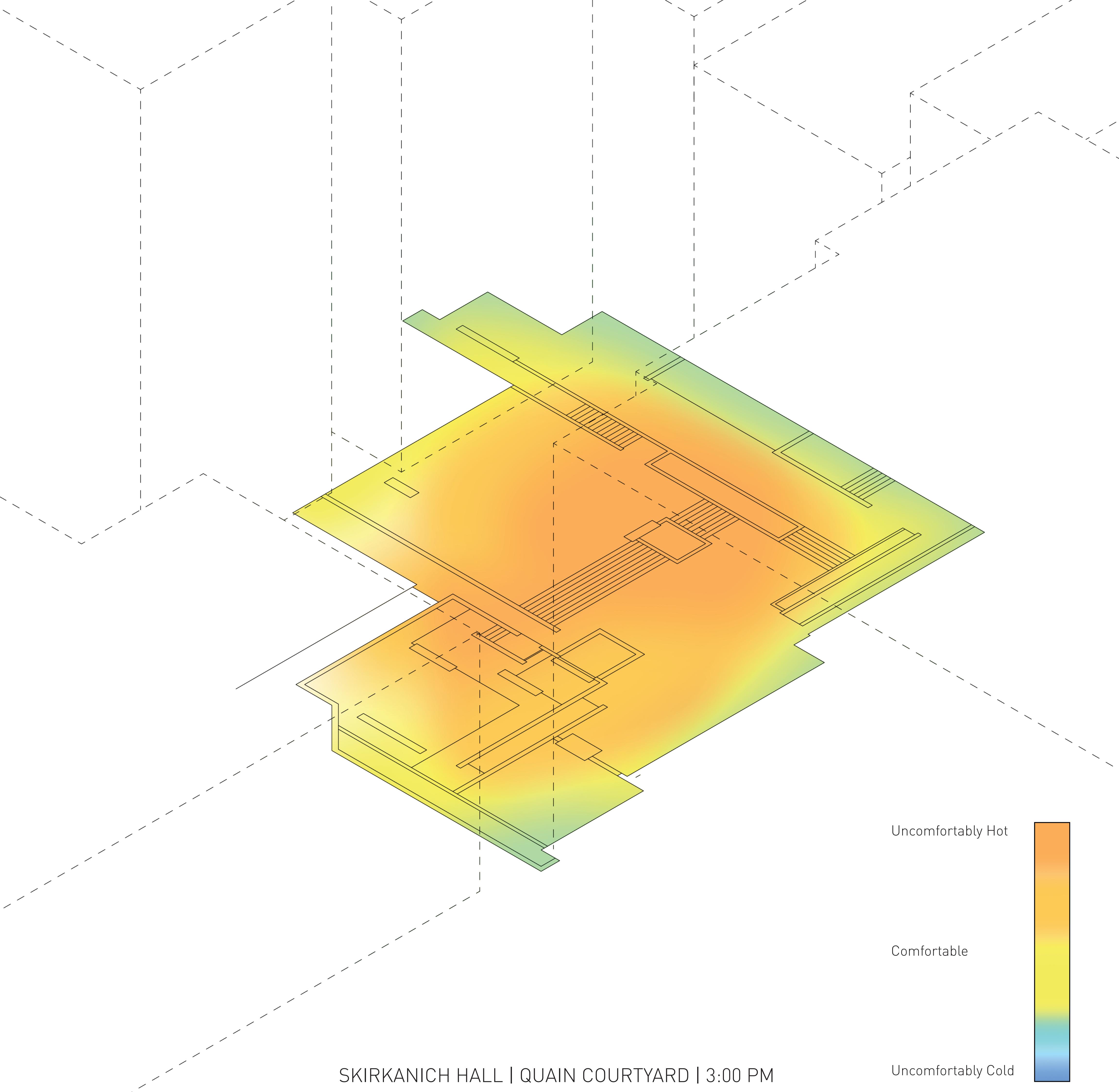


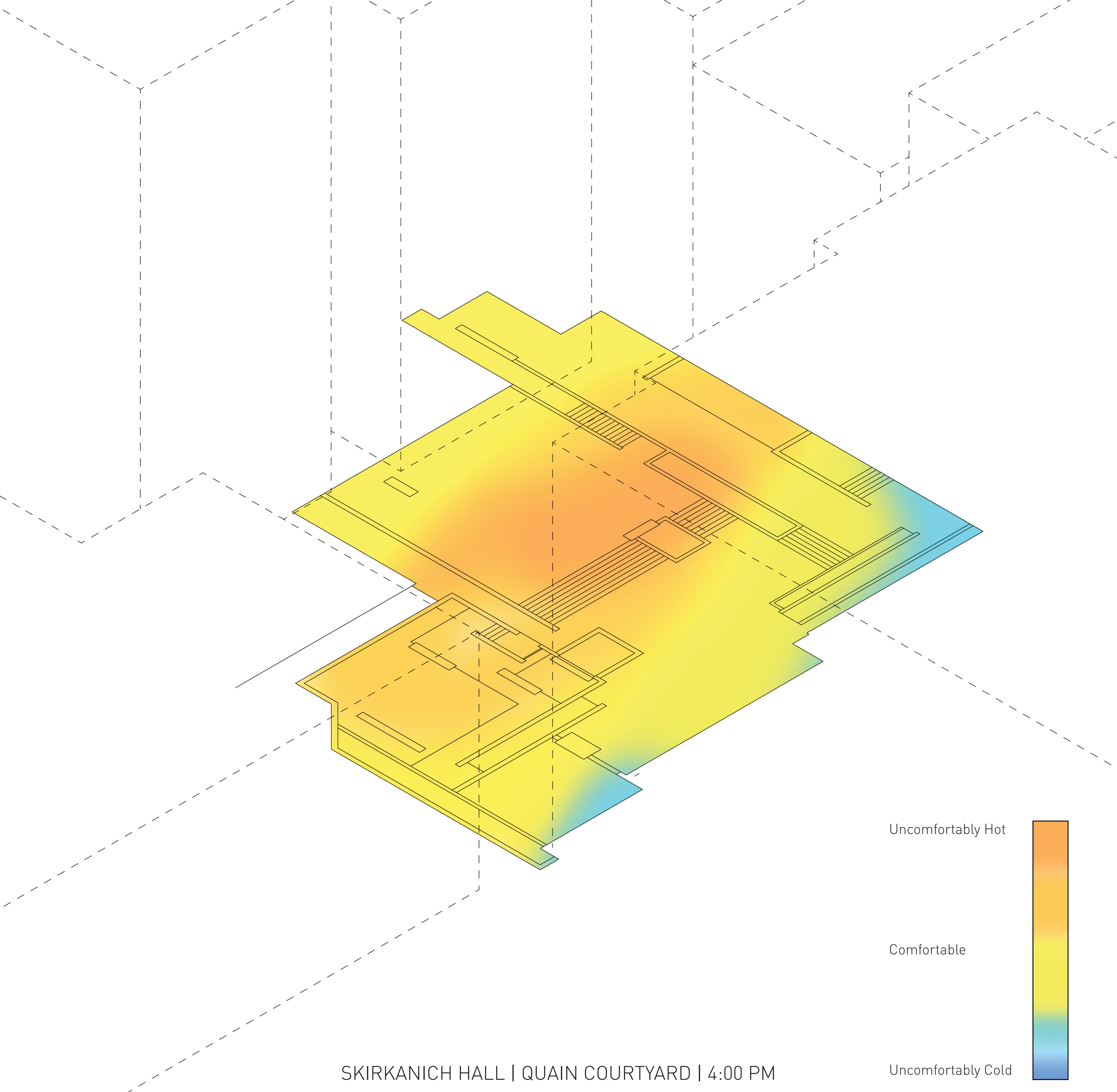


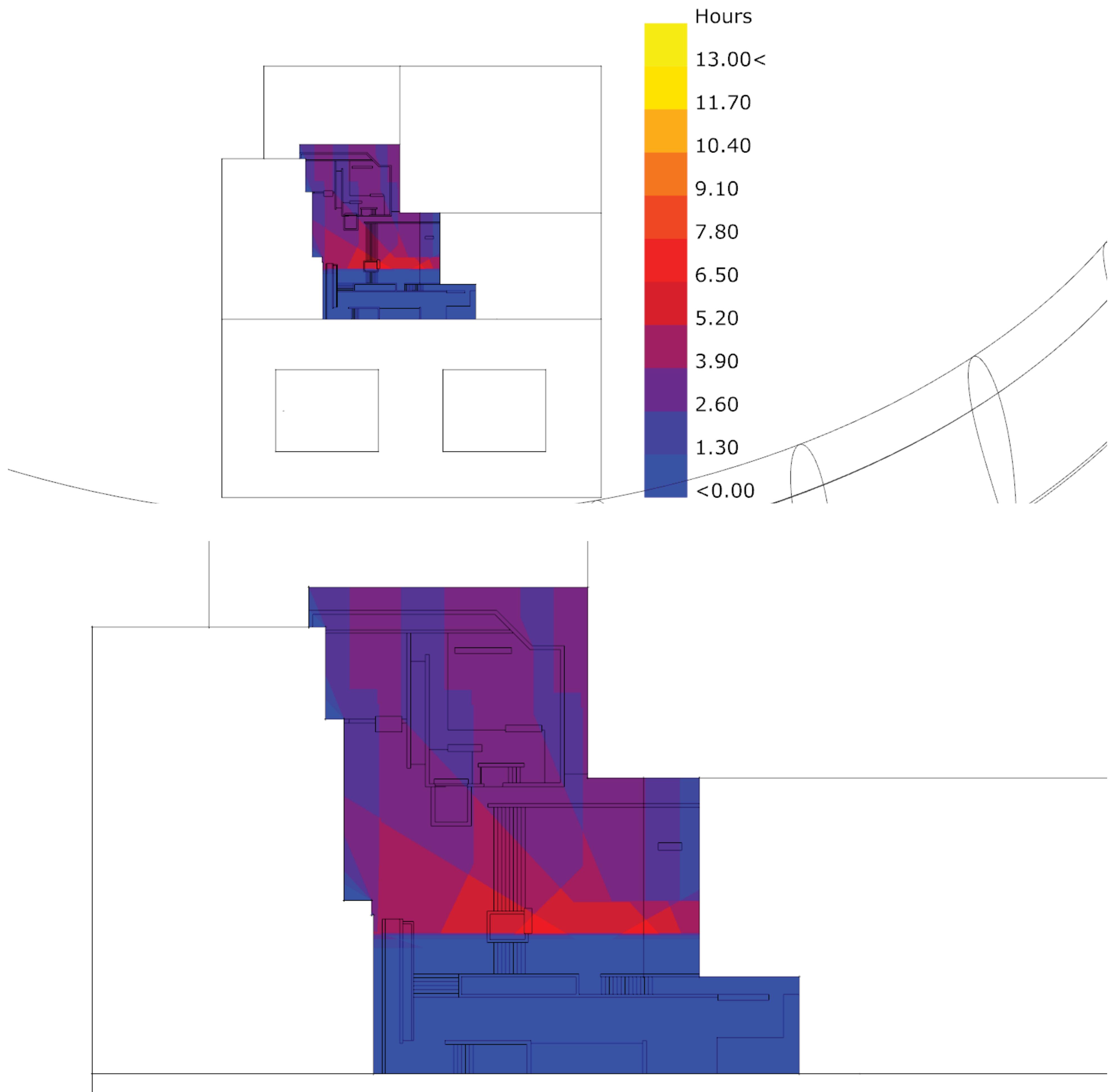












SKIRKANICH HALL | QUAIN COURTYARD | SUNLIGHT ANALYSIS

SKIRKANICH HALL | QUAIN COURTYARD | WEATHER DATA

DATE	TIME	LOCATION	DRY BULB	RELATIVE HUMIDITY	WIND SPEED	COMFORT LEVEL
09.14.1995	10:00 AM	Philadelphia EPW	27.2 C	69%	2.7 m/s	
09.14.2017	10:30 AM	Weather Station	25 C	71%	3.5 m/s	
09.14.2017	10:30 AM	Quain Courtyard	29.7 C	63%	0.3 - 1.0 m/s	Hot
09.09.1995	11:00 AM	Philadelphia EPW	25.6 C	67%	1.5 m/s	
09.09.2017	11:30 AM	Weather Station	20 C	50%	5.1 m/s	
09.09.2017	11:30 AM	Quain Courtyard	21.6 C	52%	0.2 - 1.1 m/s	Comfortable
09.14.1995	12:00 PM	Philadelphia EPW	30.6 C	55%	2.1 m/s	
09.14.2017	12:00 PM	Weather Station	27 C	60%	4.2 m/s	
09.14.2017	12:00 PM	Quain Courtyard	30.0 C	53%	0.4 - 2.2 m/s	Comfortable
09.09.1995	1:00 PM	Philadelphia EPW	26.1 C	65%	3.1 m/s	
09.09.2017	1:00 PM	Weather Station	19.4 C	47%	3.6 m/s	
09.09.2017	1:00 PM	Quain Courtyard	23.5 C	45%	0.4 - 1.9 m/s	Comfortable
09.09.1995	2:00 PM	Philadelphia EPW	28.3 C	55%	2.6 m/s	
09.09.2017	2:00 PM	Weather Station	21.1 C	42%	6.2 m/s	
09.09.2017	2:00 PM	Quain Courtyard	24.7 C	43%	0.5 - 2.0 m/s	Slightly Hot
09.14.1995	3:00 PM	Philadelphia EPW	31.1 C	45%	2.5 m/s	
09.14.2017	3:00 PM	Weather Station	27 C	53%	4.5 m/s	
09.14.2017	3:00 PM	Quain Courtyard	27.4 C	54%	0.3 - 1.0 m/s	Slightly Hot
09.09.1995	4:00 PM	Philadelphia EPW	28.9 C	53%	1.5 m/s	
09.09.2017	4:00 PM	Weather Station	21.7 C	39%	5.7 m/s	
09.09.2017	4:00 PM	Quain Courtyard	24.2 C	41%	0.3 - 1.4 m/s	Slightly Hot

10:30 AM



11:30 AM



12:00 PM



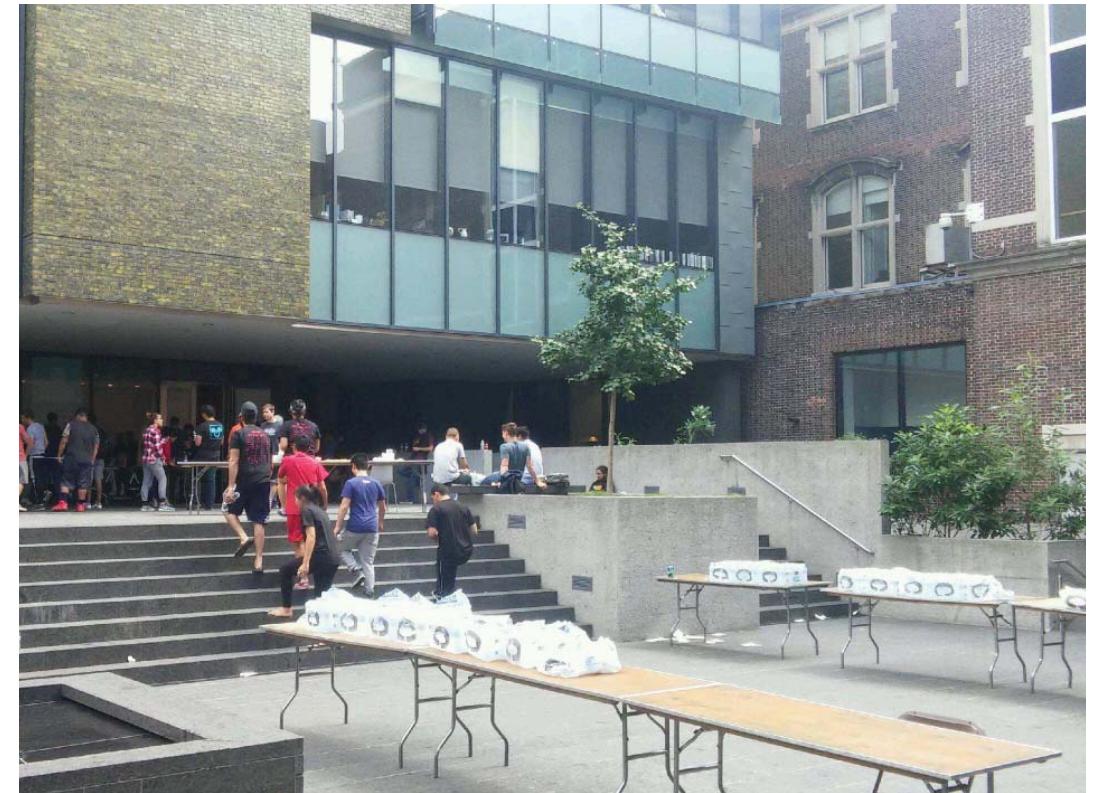
1:00 PM



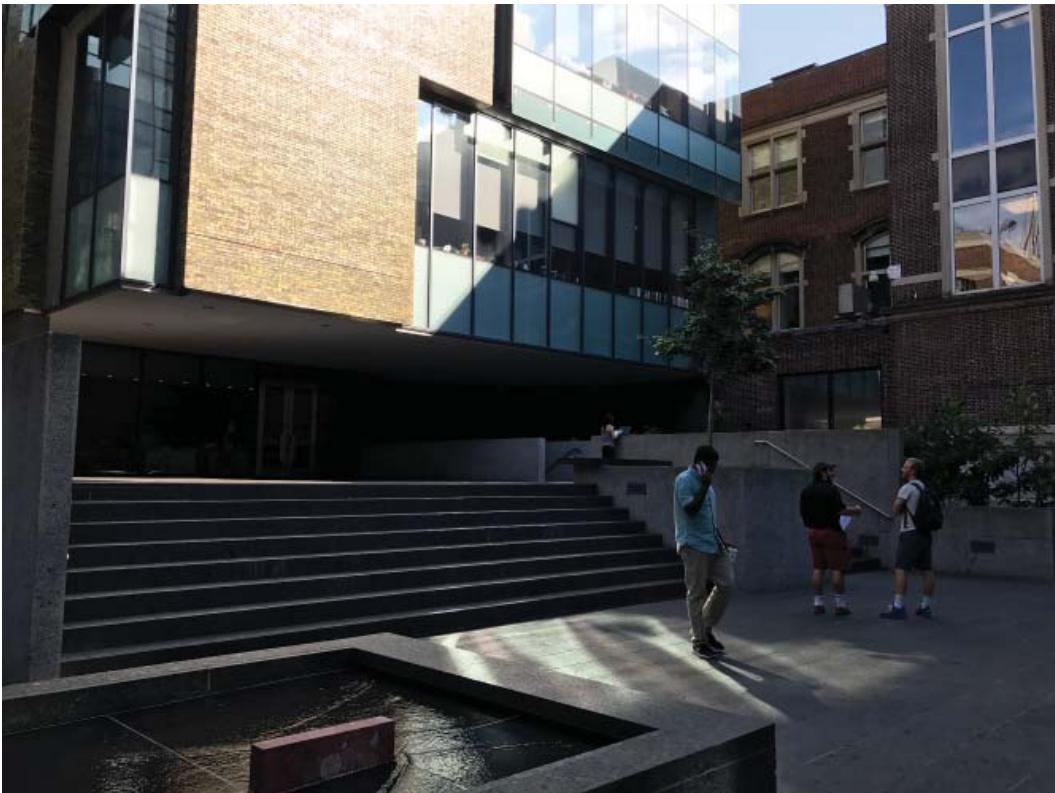
2:00 PM



3:00 PM



4:00 PM



4:00 PM



We observed that there were more people out (sitting, walking, playing ping pong) during the day as the temperature increased. When the temperature was at its highest, the occupants typically sat in the shaded, semi-shaded, and wind-exposed areas. Our top two design changes would be to use less reflective and less absorbent materials due to heat radiation. The comfort level of a summer and winter day are difficult to predict because this site has adequate sunlight and wind exposure, allowing warmth in the winter and a breeze in the summer.

Ignoring wind factor (as it is seen as unreliable), in the summer people may be more likely to sit in the shade, while in the winter people may be more likely to sit in the non-shaded areas for warmth.