

A photograph of a misty forest scene. A wooden staircase with a dark metal railing leads up through dense green foliage. A large, illuminated sign with the word "BREATHE" in white capital letters is mounted on a wooden wall in the background. The scene is shrouded in a thick mist or fog, creating a serene and atmospheric environment.

BREATHE

Klimagerechtes Bauen in der Gegenwart
Thomas Auer TUM / Transsolar

Staff



Transsolar offices...



CO₂ TO ZERO

WE NEED TO REDUCE OUR EMISSIONS



Efficiency driven by Gadgets





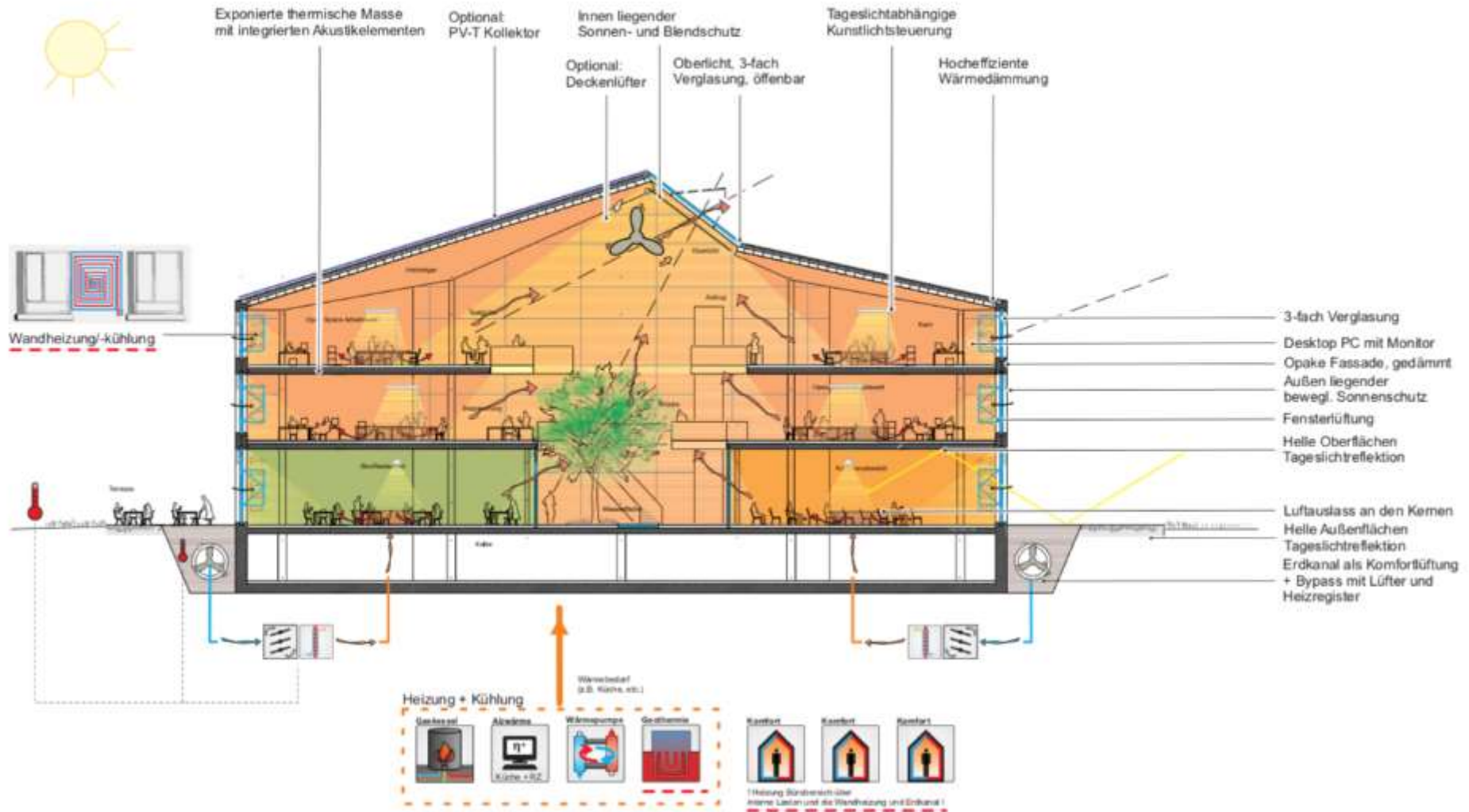
Welcome to the breathtaking
Tokyo Water Park



Alnatura Head Quarter, Haas Cook Zemmrich Architects

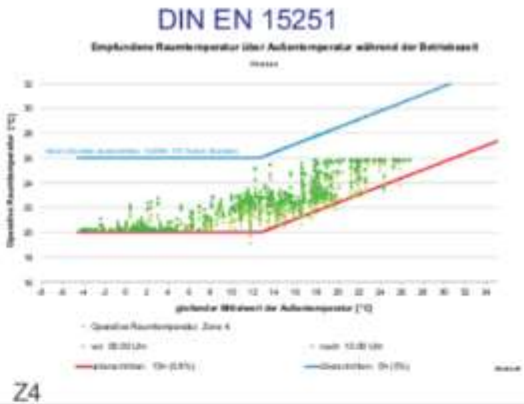
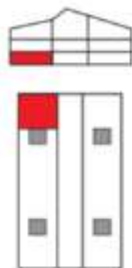


Energiekonzept

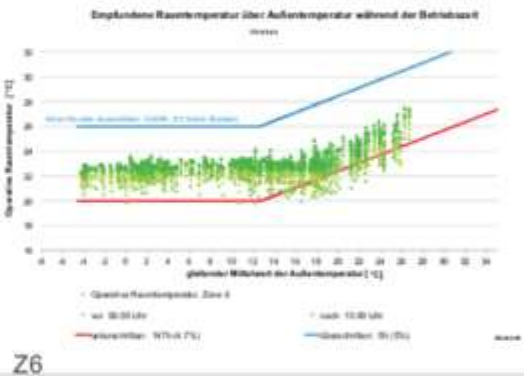
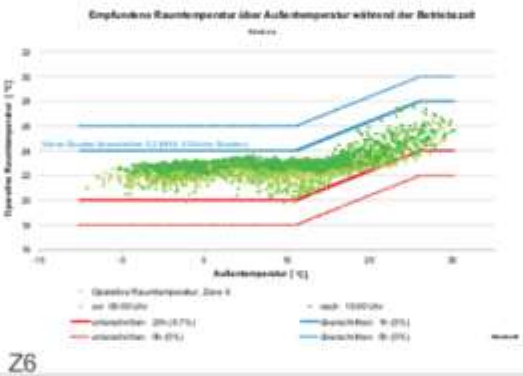
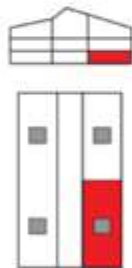


Mehrzonensimulation

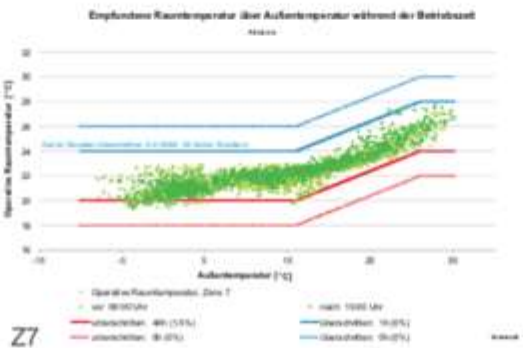
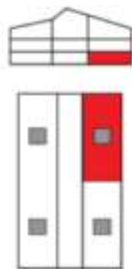
Besprecher



Grossraum



Restaurant

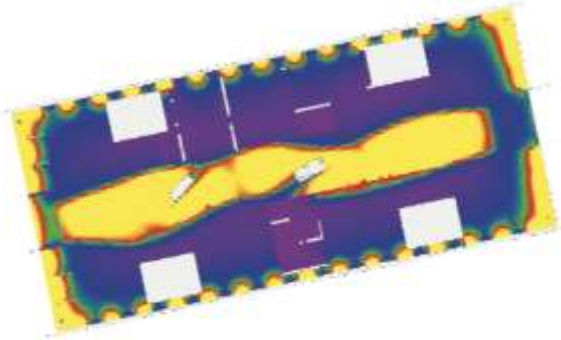


Tageslichtsimulation

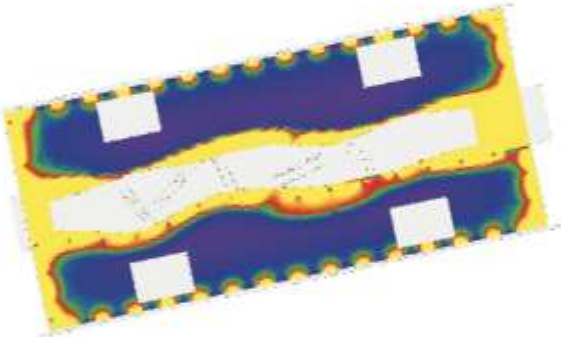
Tageslichtquotient in %



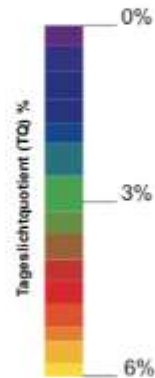
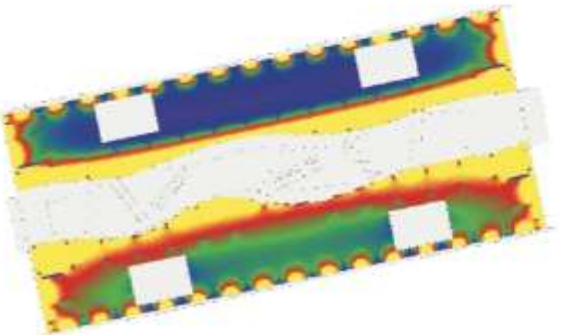
Erdgeschoss



1.Obergeschoss

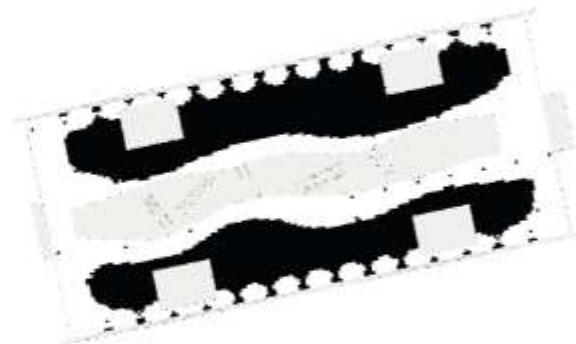
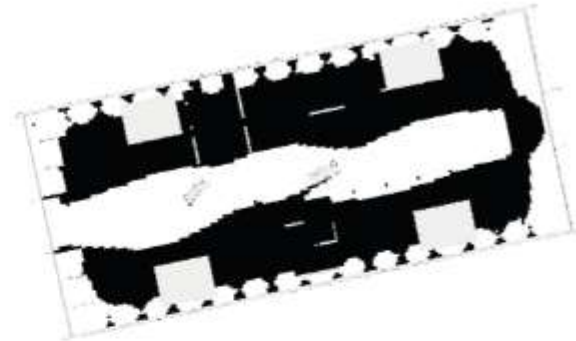


2.Obergeschoss



 > 2% (Erfüllt die Arbeitsstättenrichtlinien)

 < 2% (Erfüllt die Arbeitsstättenrichtlinien nicht)



 = 42%
< 2%
 = 58%
> 2%

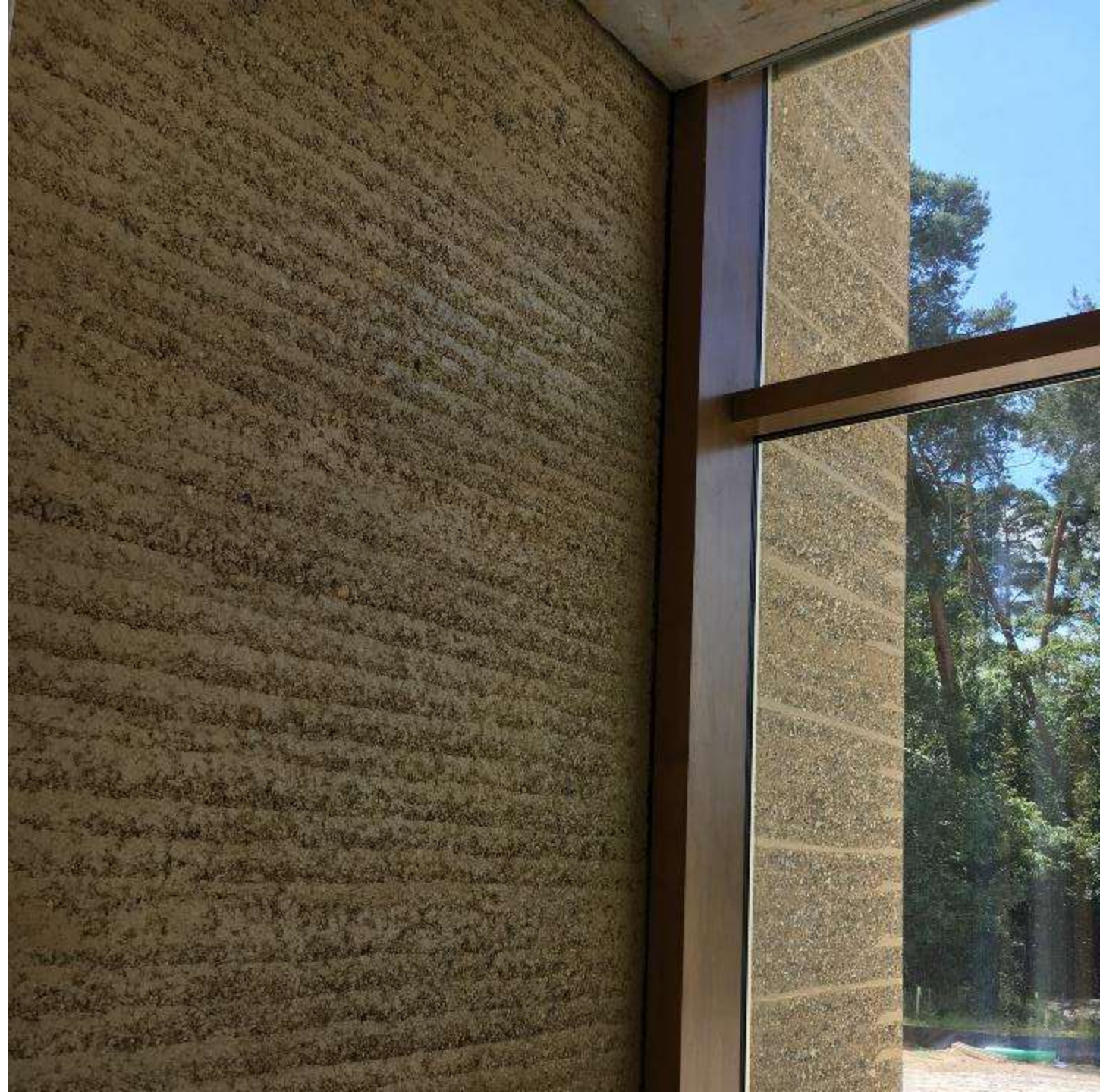
Die Zertifizierung (nach DGNB) vergibt die höchste Punktzahl sofern mehr als 50% der Fläche einen Tageslichtquotient > 2% hat.











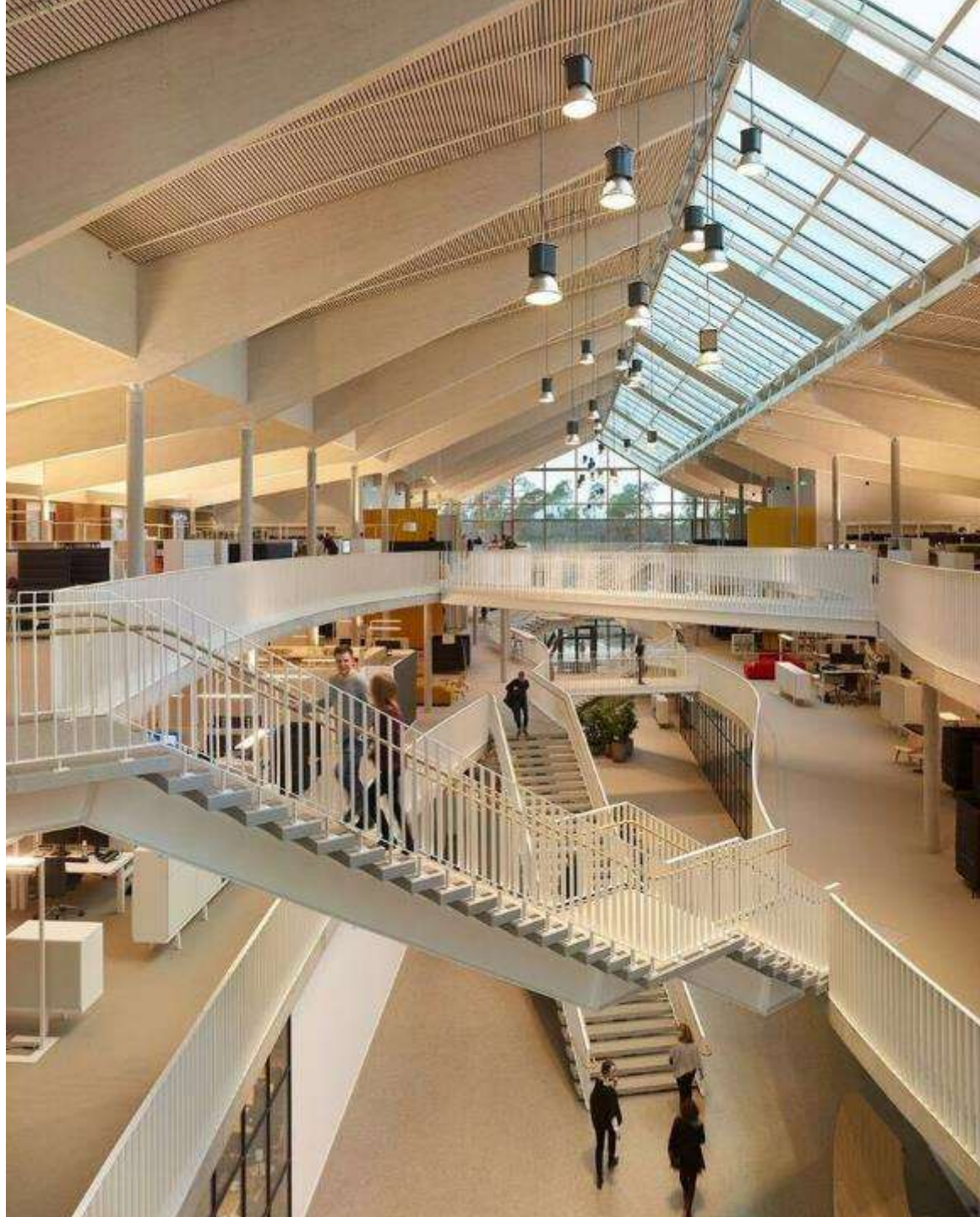




photo: Roland Halbe

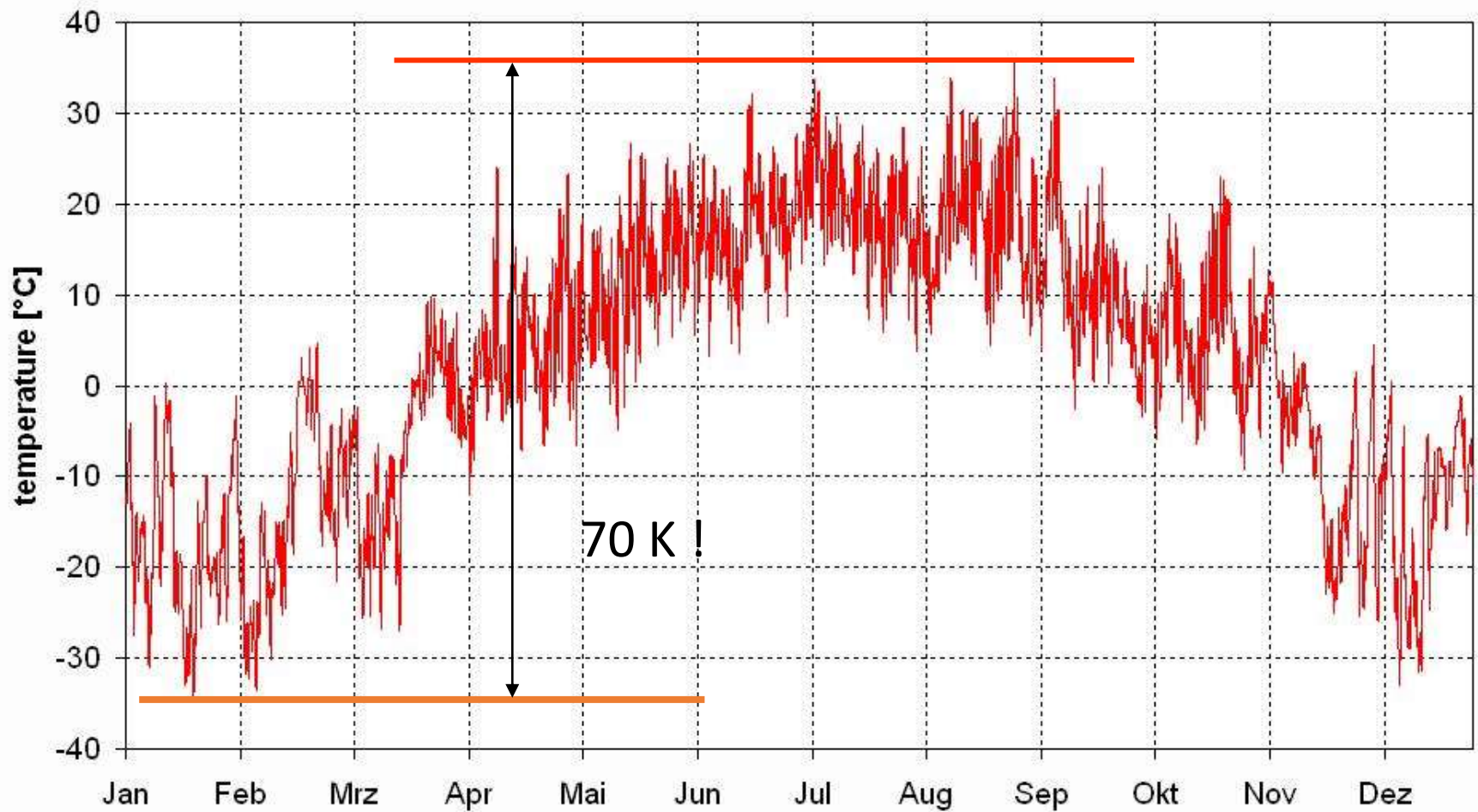


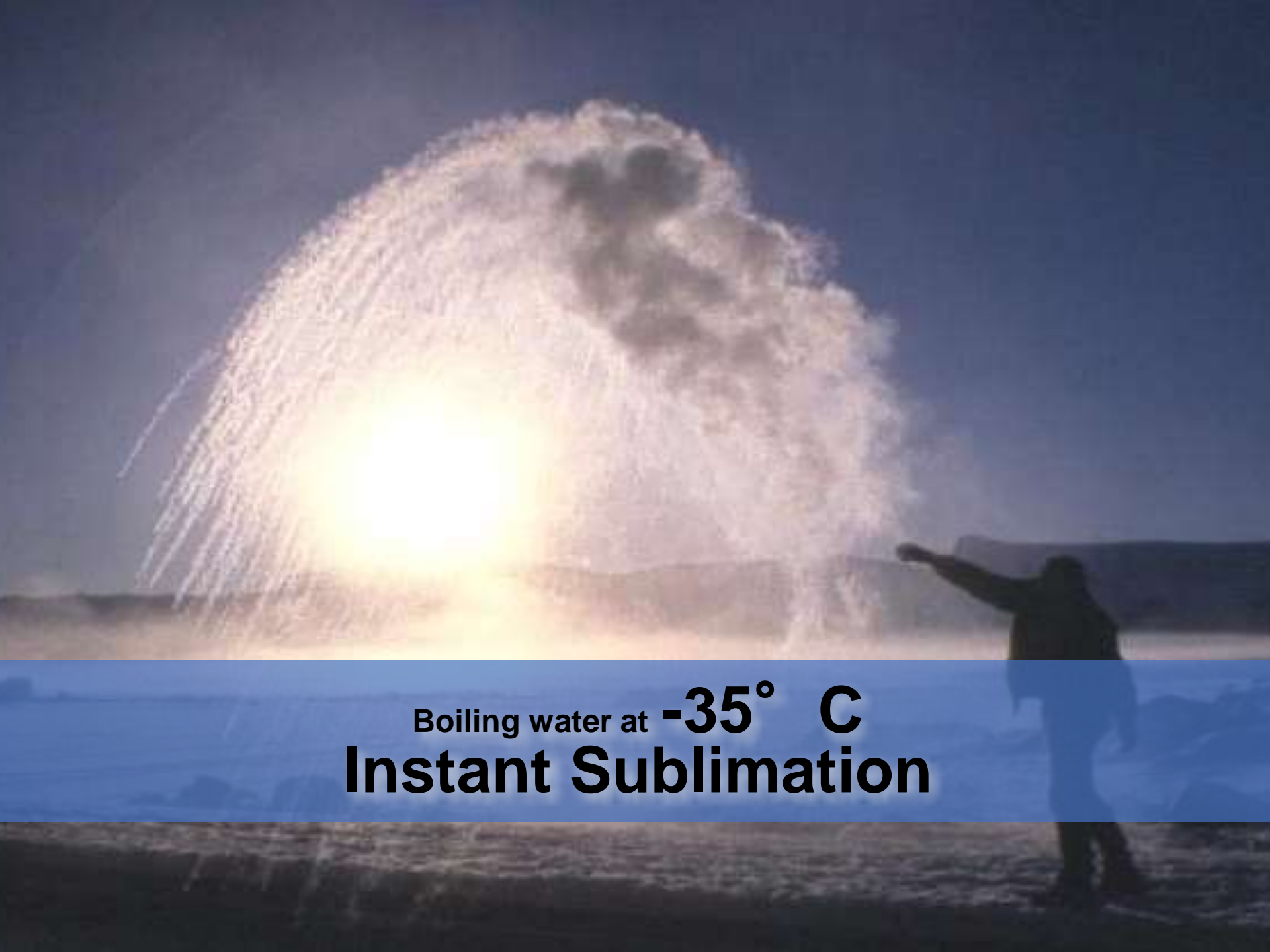
Manitoba Hydro - Winnipeg

architect: **KPMB**

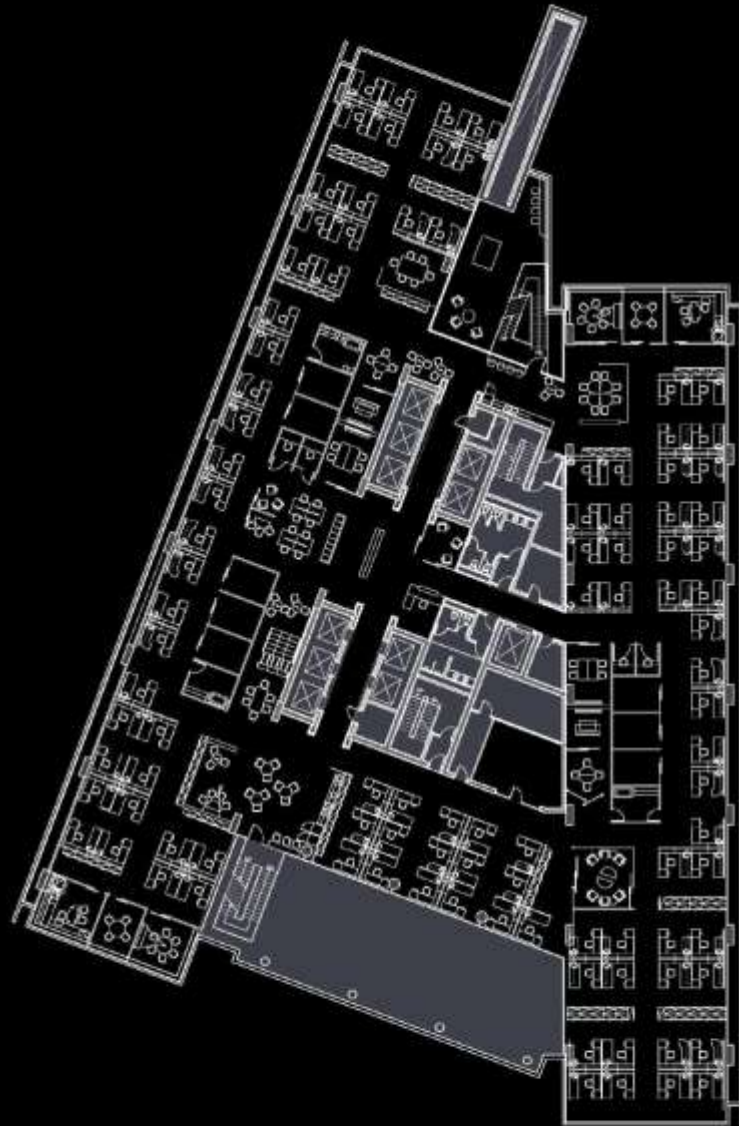
photo: Gerrit

cwec_mb_winnipeg



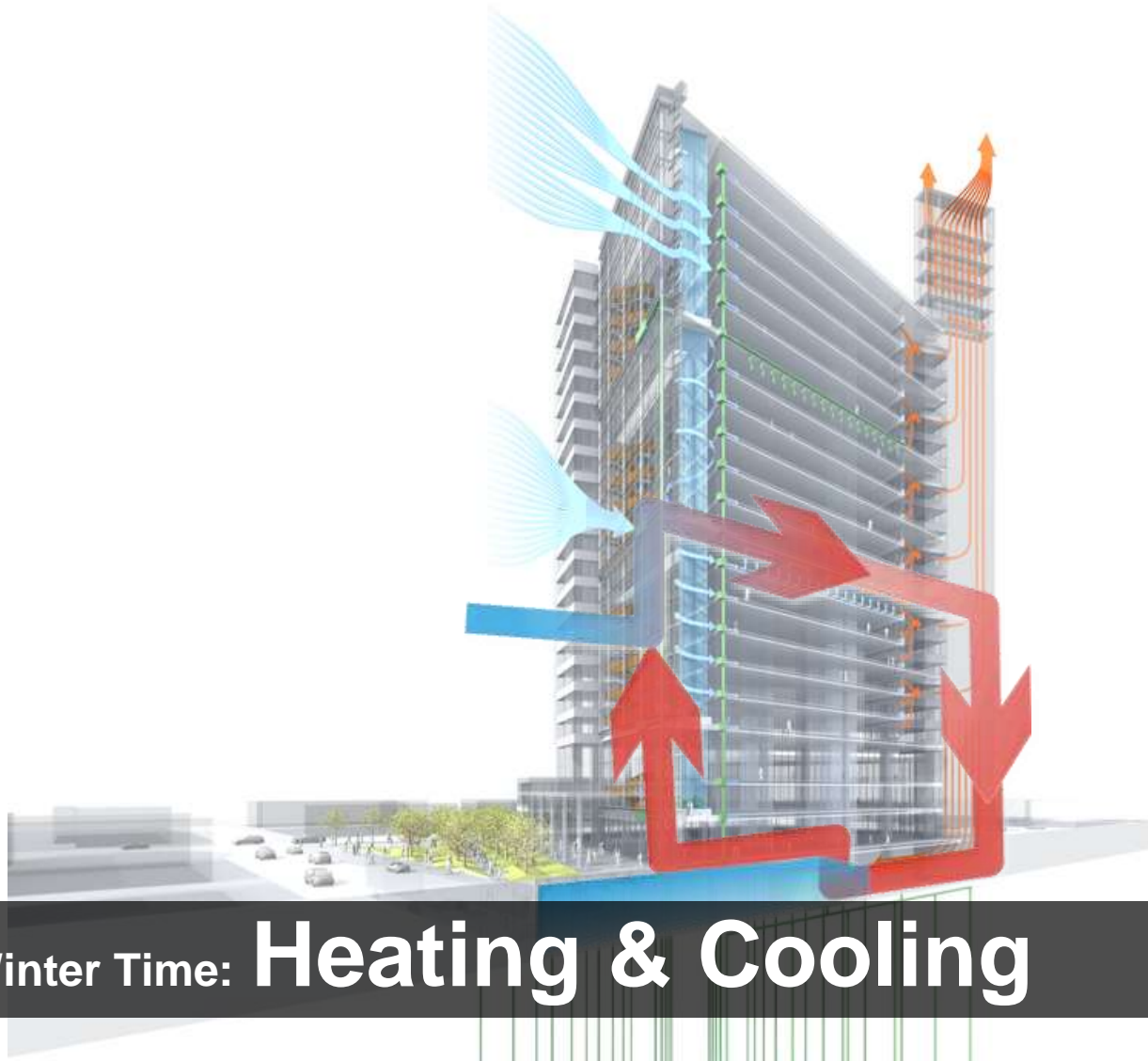
A person in a dark, cold environment is pouring a large volume of boiling water. The water hits the cold air and surfaces, creating a massive, dense spray of fine ice crystals that catch the light, appearing as a large, bright, white cloud. The background is a dark, clear sky. The person is silhouetted against the bright spray of ice.

Boiling water at -35°C
Instant Sublimation

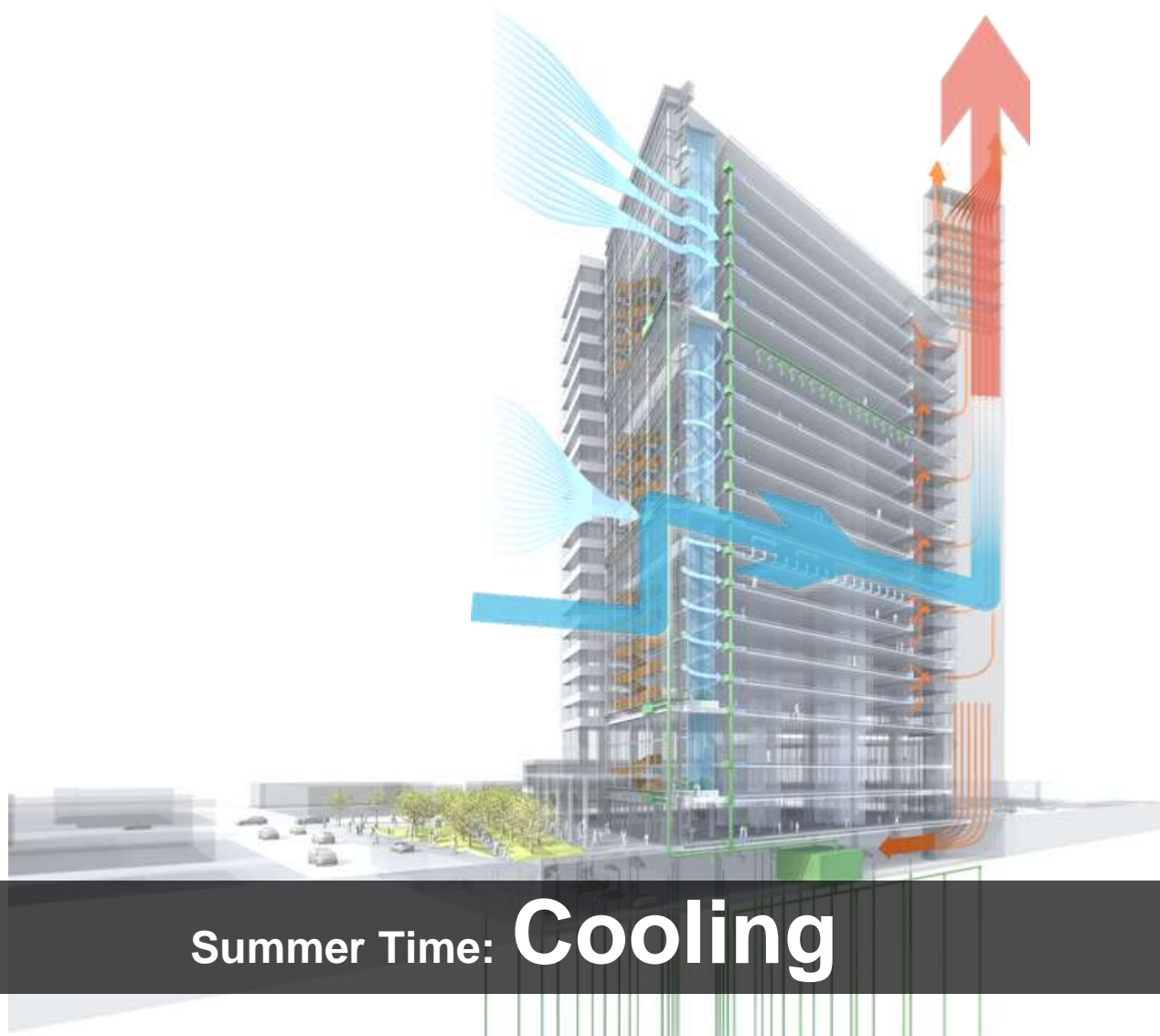


Typical Floor Plan



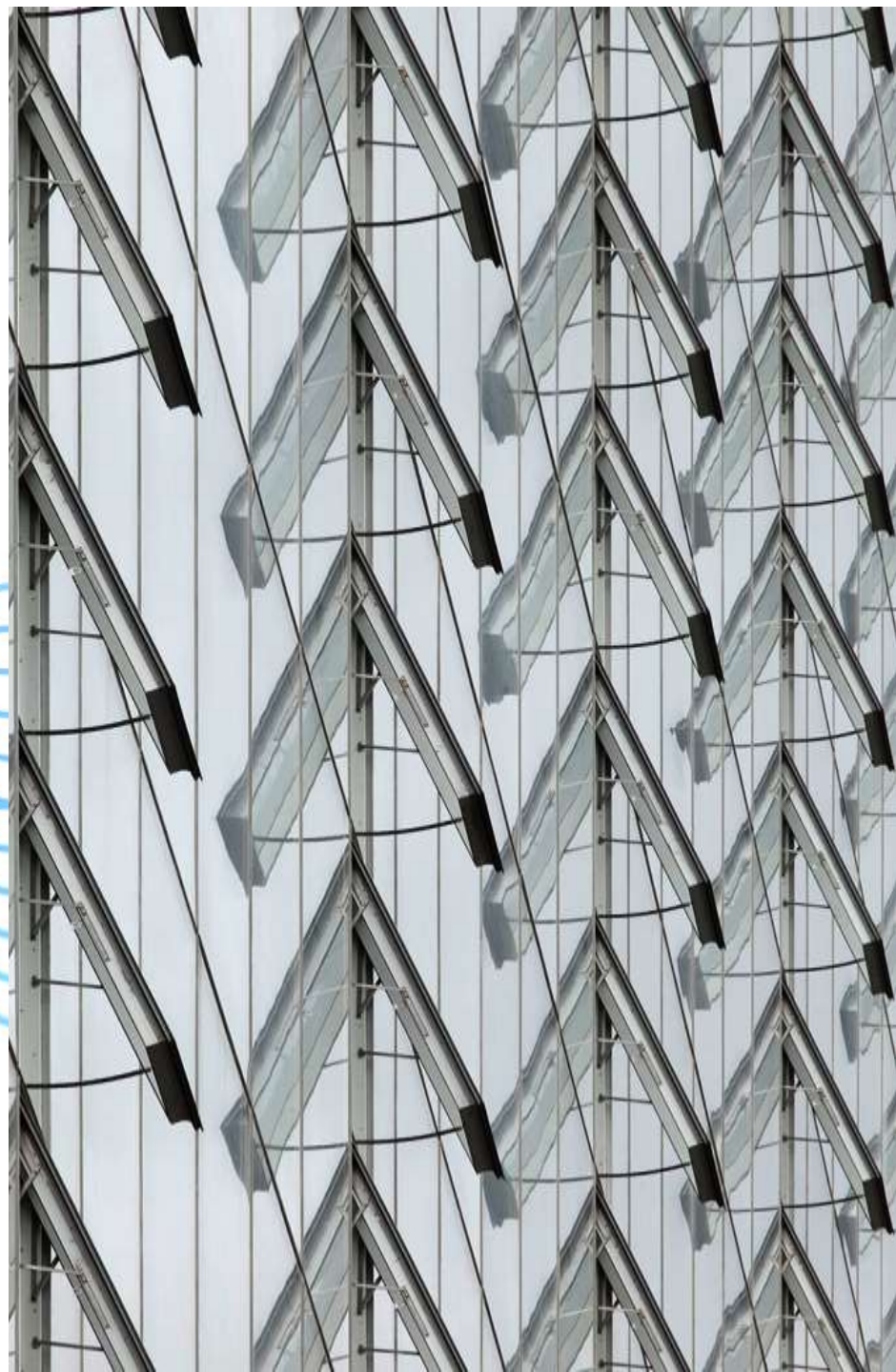
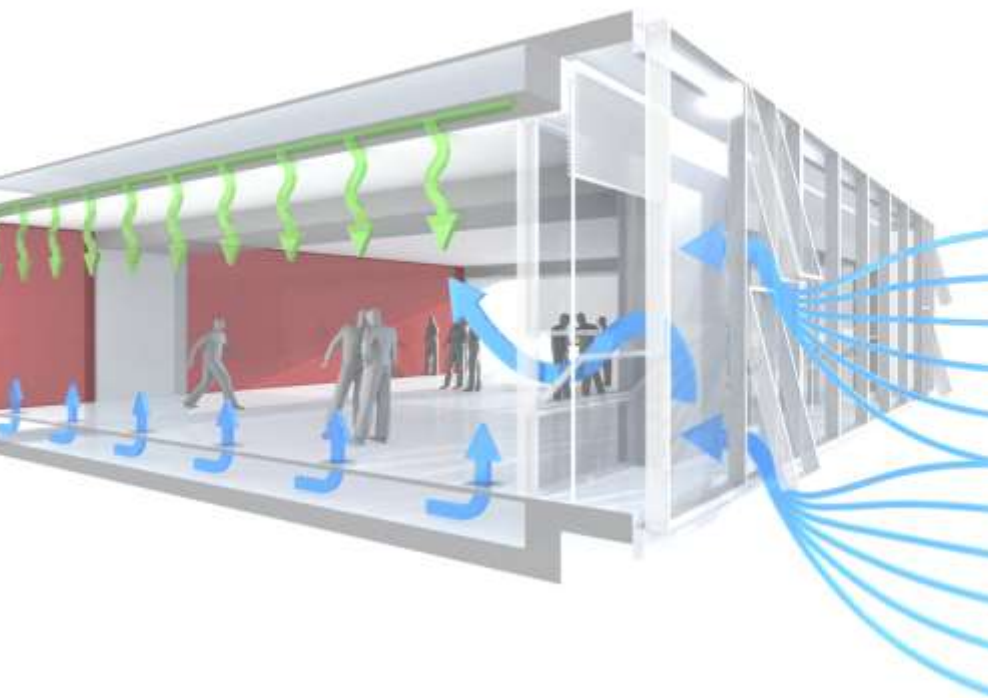


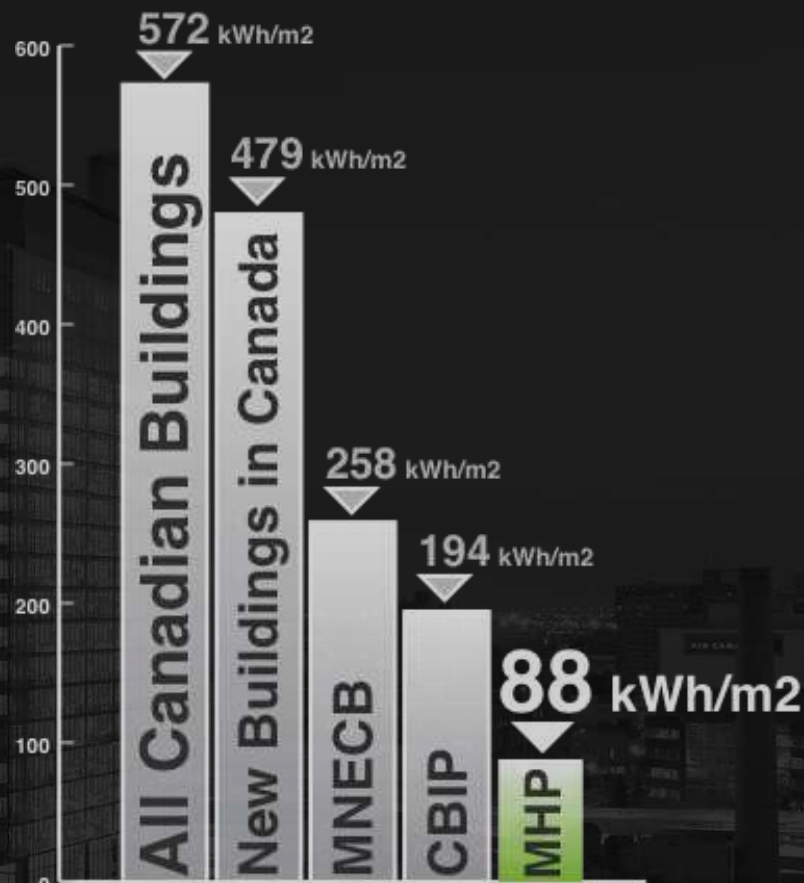
Winter Time: Heating & Cooling



Summer Time: **Cooling**





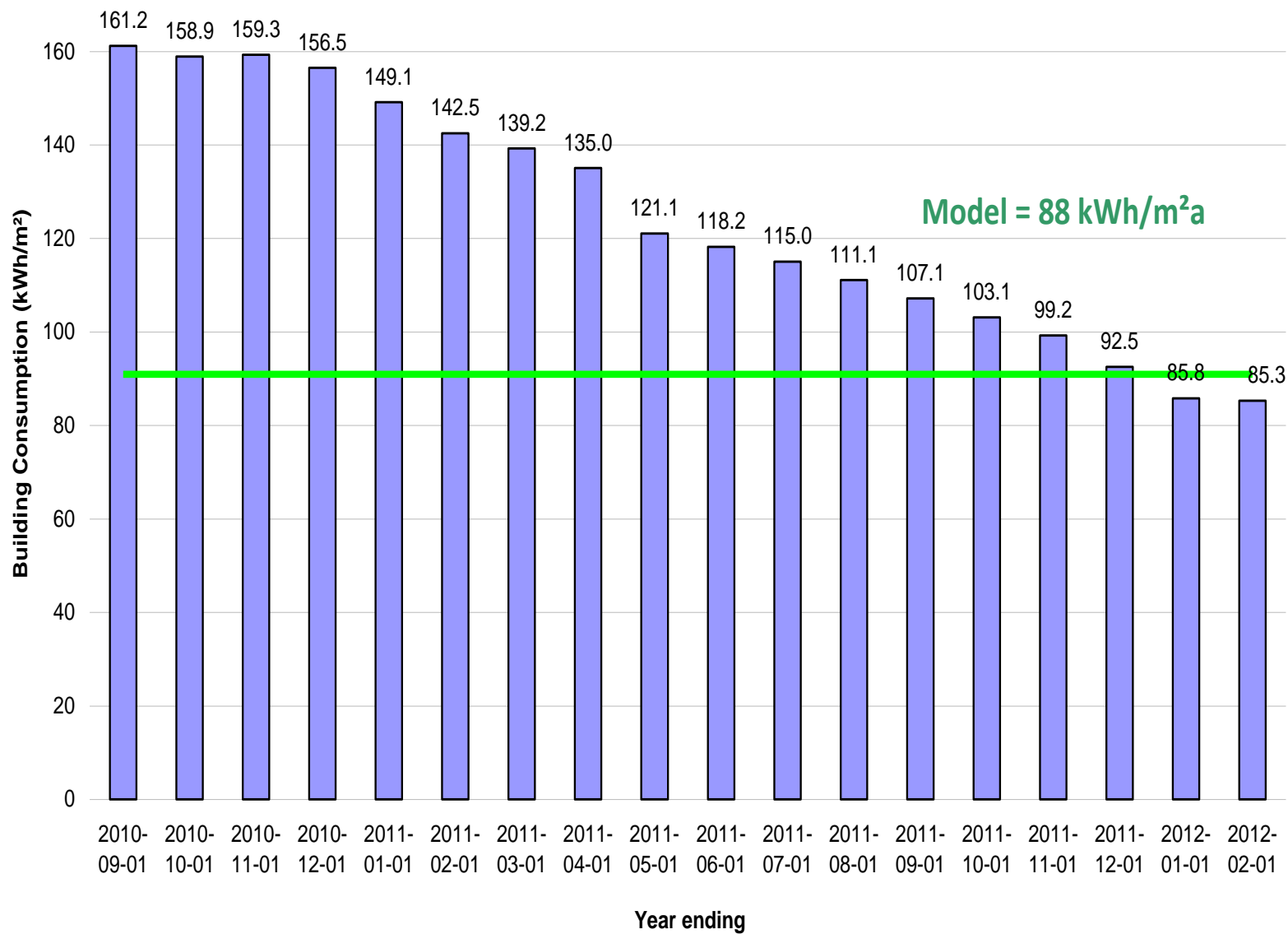


Manitoba Hydro Place

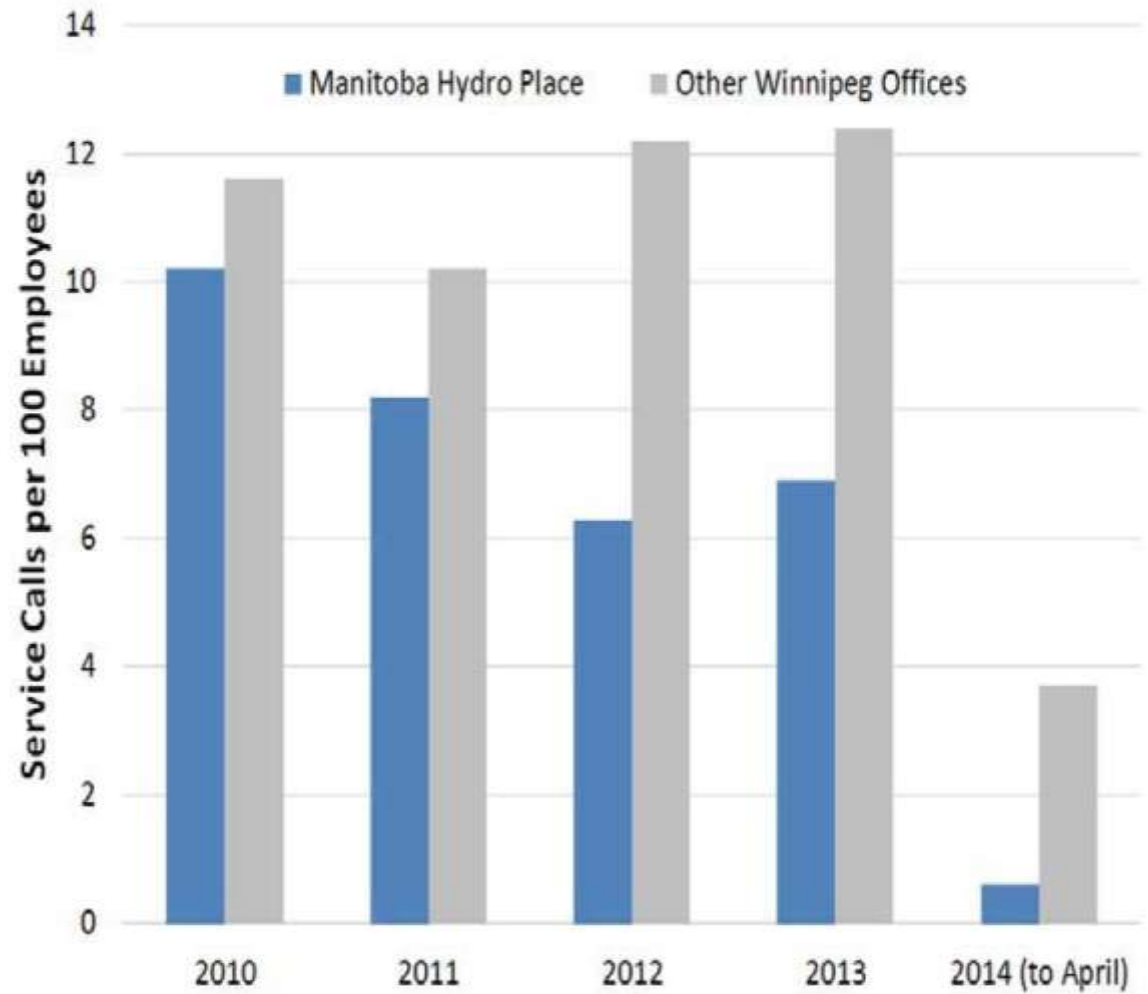
Energy use of Canadian buildings

* as of September 2010

Manitoba Hydro Place - Annual Rolling Energy Totals

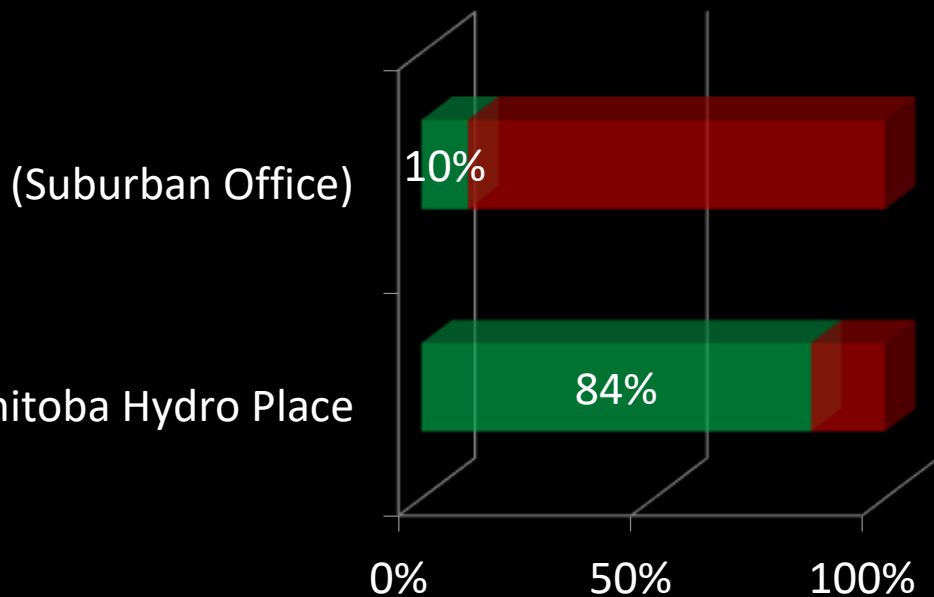


50% reduction in
thermal comfort
complaints

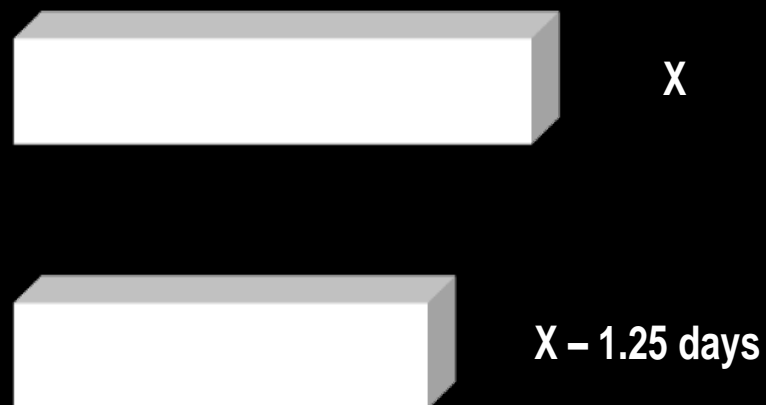


Hydro Service Calls

**Green Commuting Options [%]
(Public transportation, carpool or cycle)**



Annual Sick Days per Employee



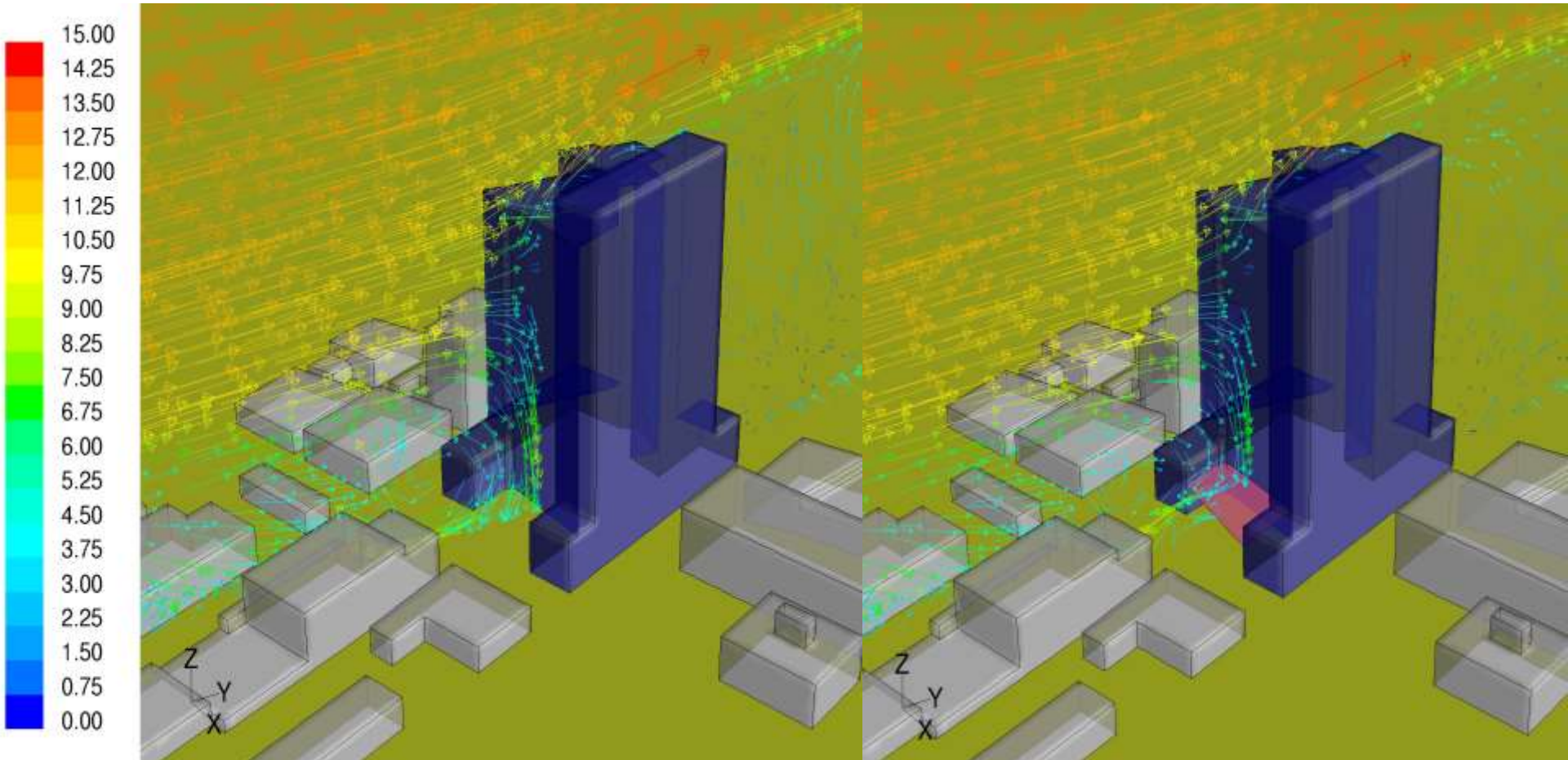
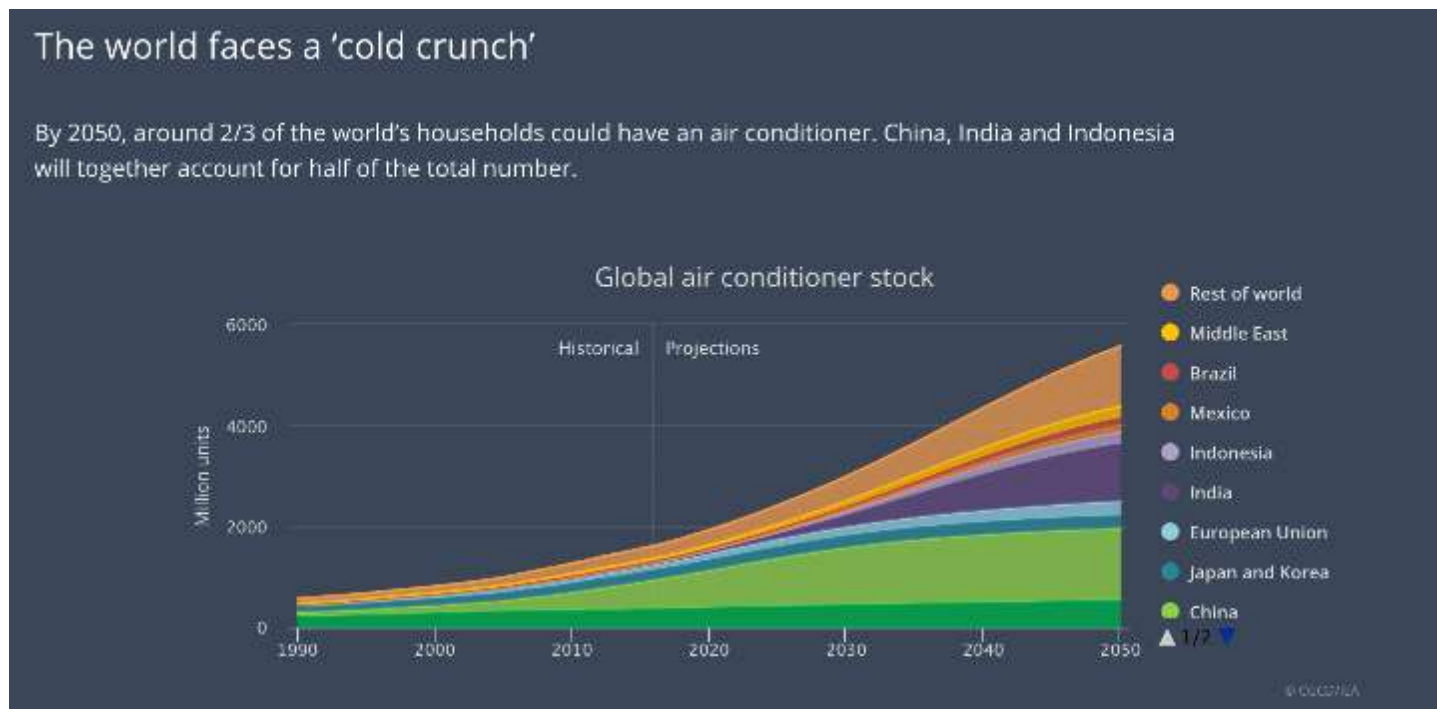




photo: Gerry Kopelow

Cooling is the fastest growing use of energy in buildings

Without action to address energy efficiency, energy demand for space cooling will more than triple by 2050 – consuming as much electricity as all of China and India today.



International Energy Agency: the Future of Cooling
www.iea.org/futureofcooling/



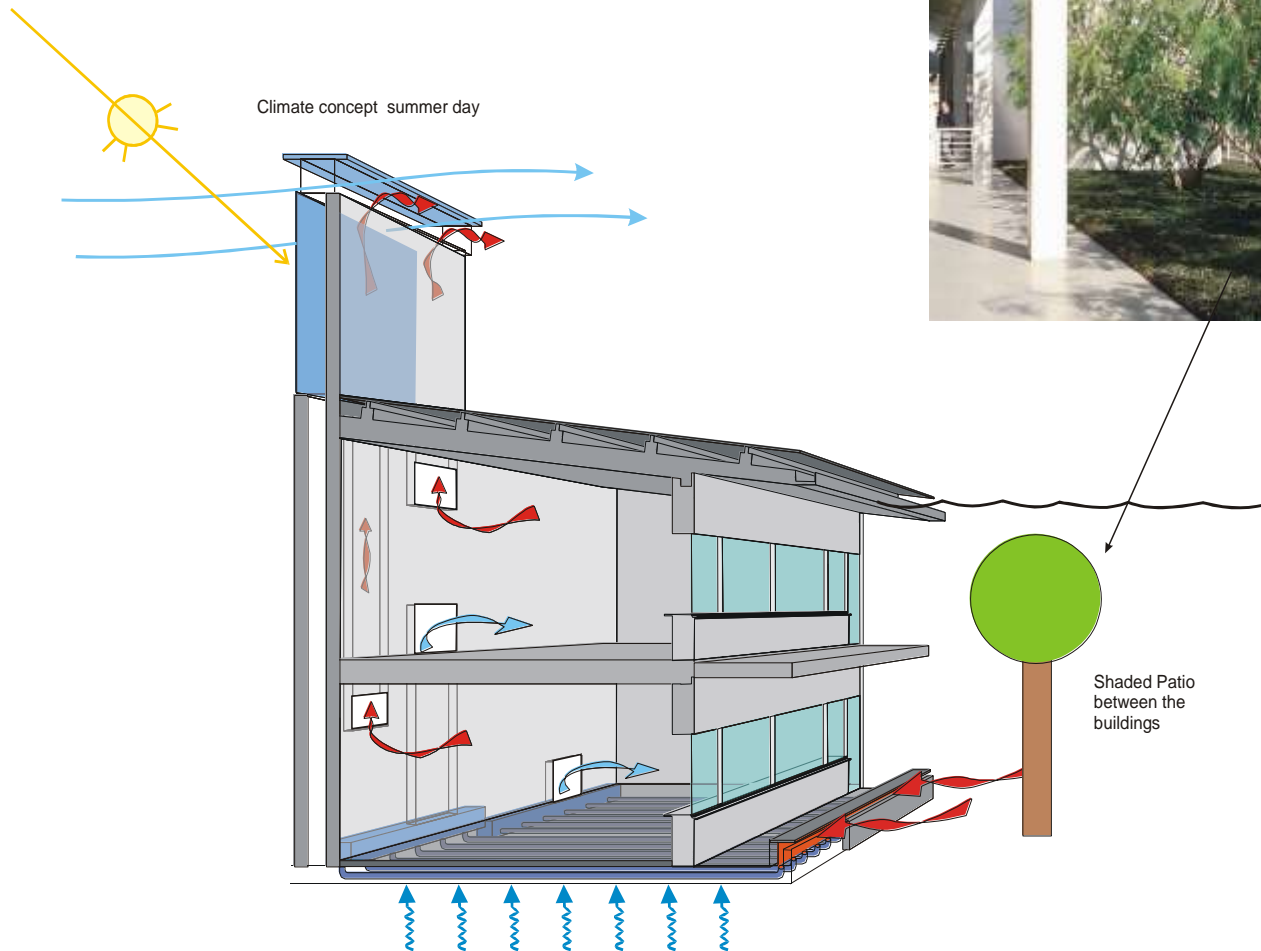
French School - Damascus

architect: **Atelier Lion, Paris**

Historic city of
Damascus



Summer day



Summer night

Climate concept summer night

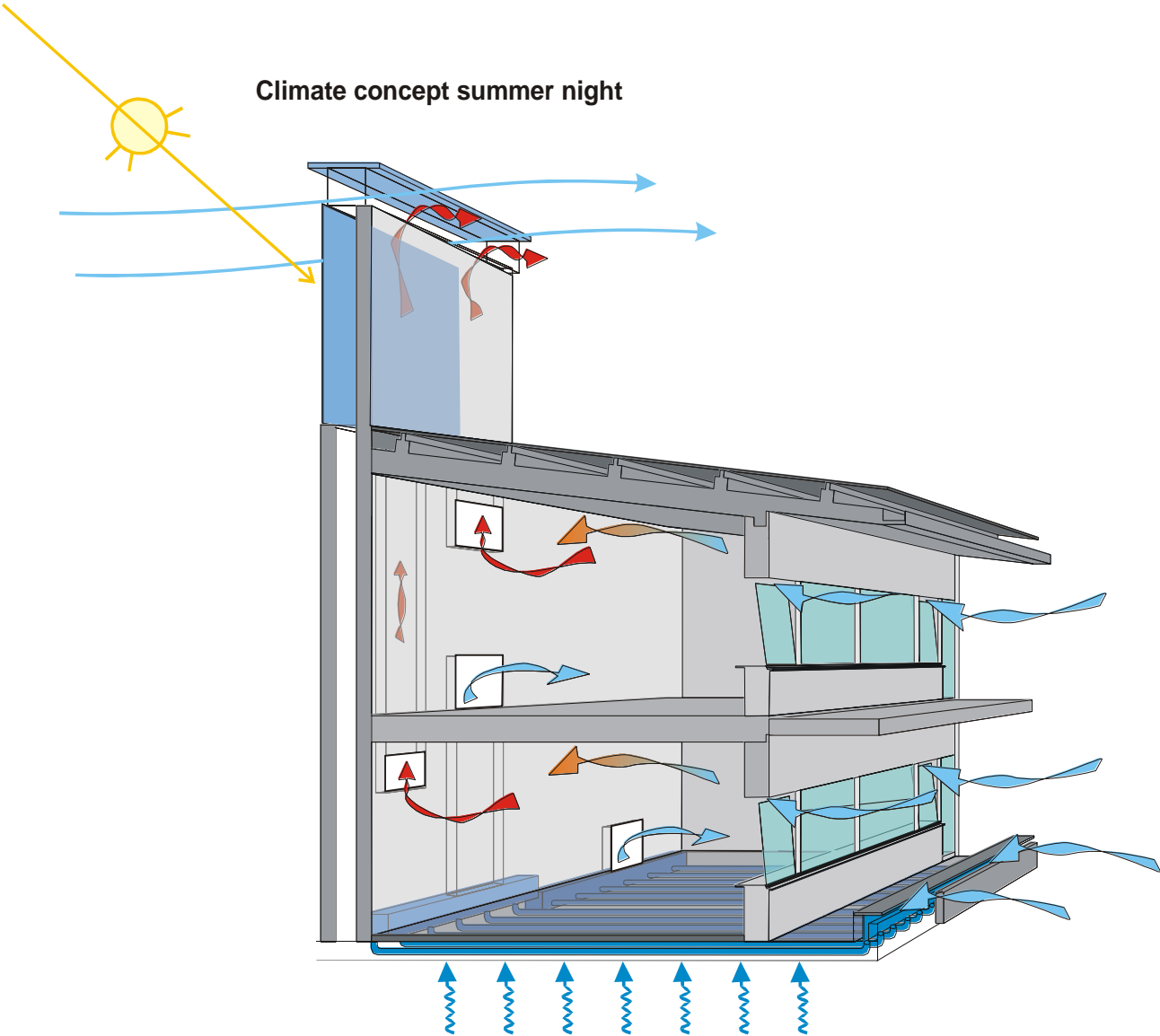




photo: Adria Goula

Net Zero by Design

Comfortable and Energy Efficient, Building Performance by Design



School of Design at NUS

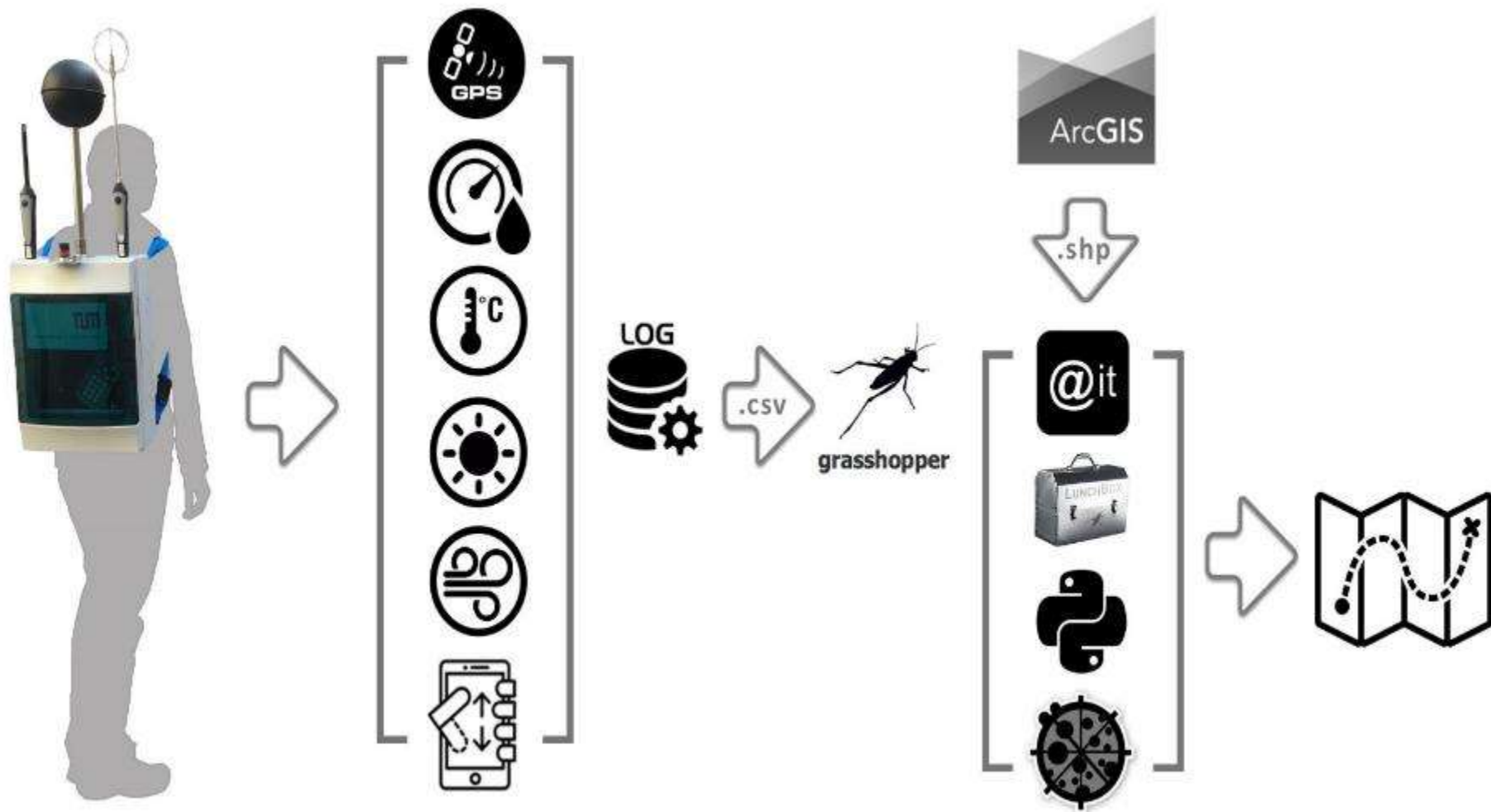
Client
National University Singapore

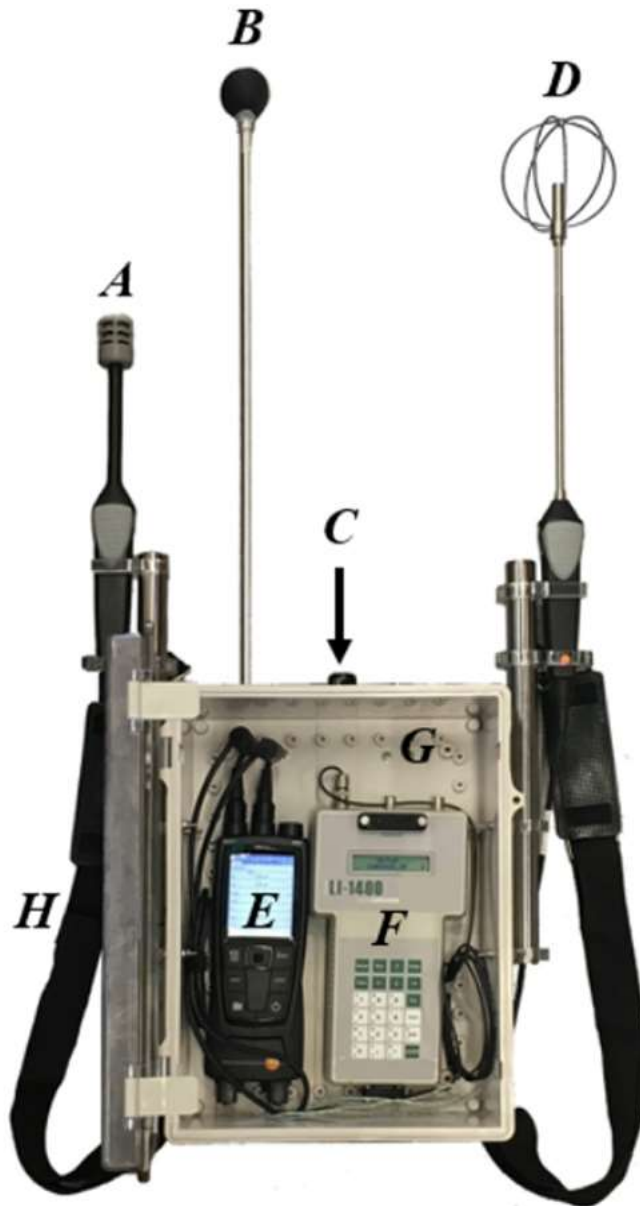
Architect
Series Multiply, London and Singapore

MEP and Architects of record
Surbana, Singapore

OUTDOOR COMFORT / URBAN MICROCLIMATE







A: TESTO 480 Air Temperature and Relative Humidity Probe (being protected from direct sunlight and rain.)

B: Globe thermometer (connected to the TESTO 480 Data Logger)

C: LICOR LI-200SA Pyranometer

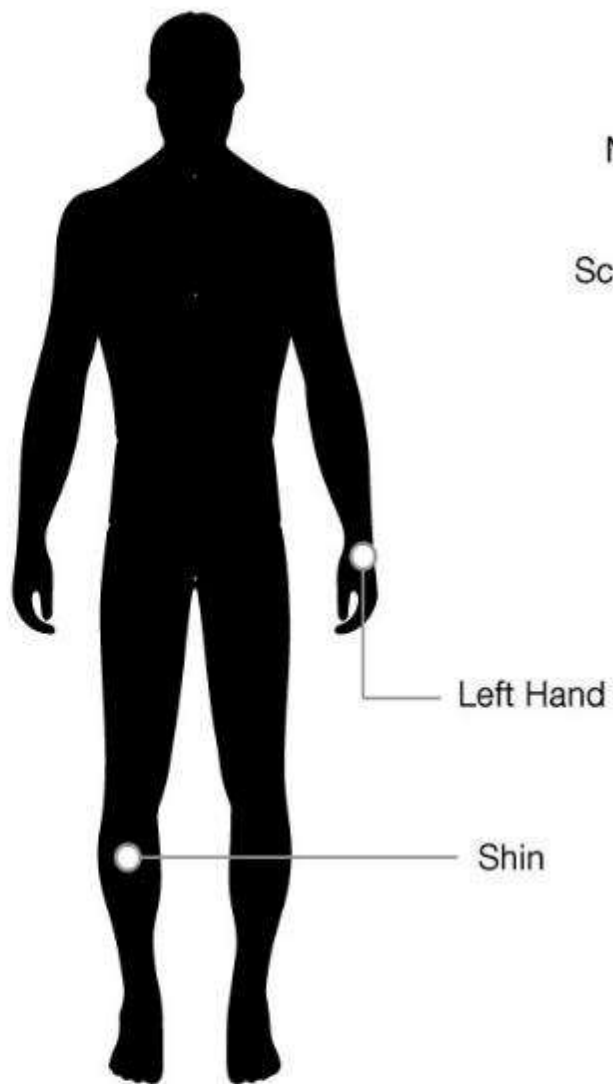
D: TESTO 480 Air Flow Probe

E: TESTO 480 Data Logger

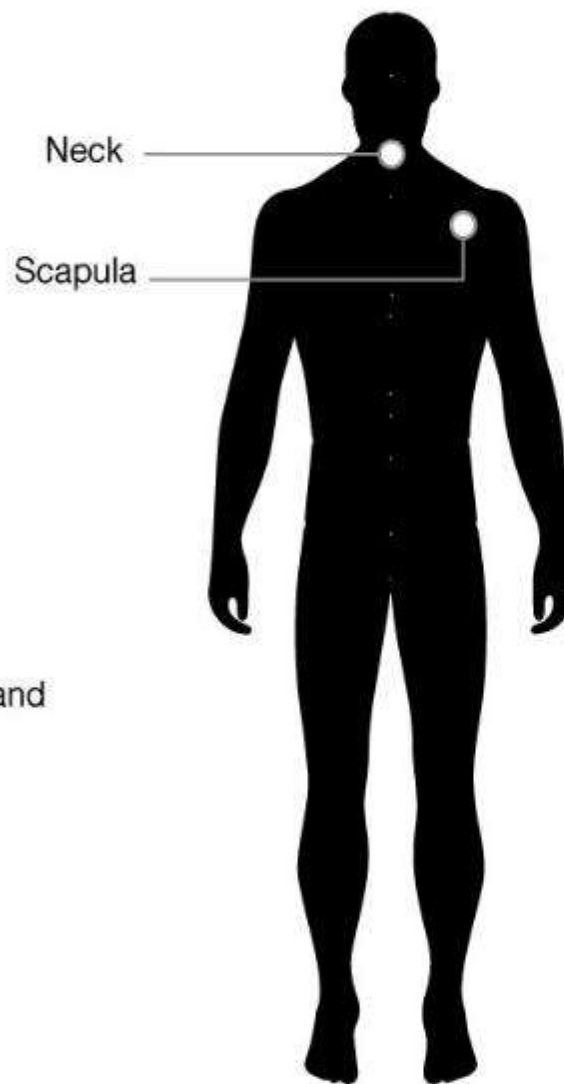
F: LICOR LI-1400 Data Logger

G: Protection Case

H: Straps



Front Body



Back Body





Outdoor Thermal Comfort Survey App

The App is developed to record subjective votes of people in terms of thermal sensation and thermal satisfaction. It is enabled with GPS location tags to pin exact survey locations.

To install the 'Outdoor Comfort Survey' app, please click the link below on your mobile device and follow the instructions:

[Install the app](#)

(Make sure to install AppSheet from Appstore or Google Play)

You can also run the app in your web browser by clicking the link below:

[Run the app in a web browser](#)



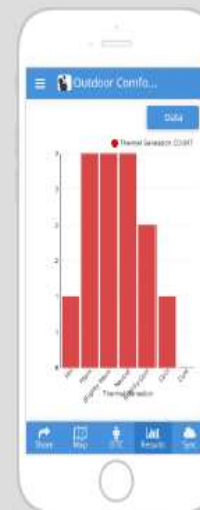
Start the Survey



Tag Location



Synchronize

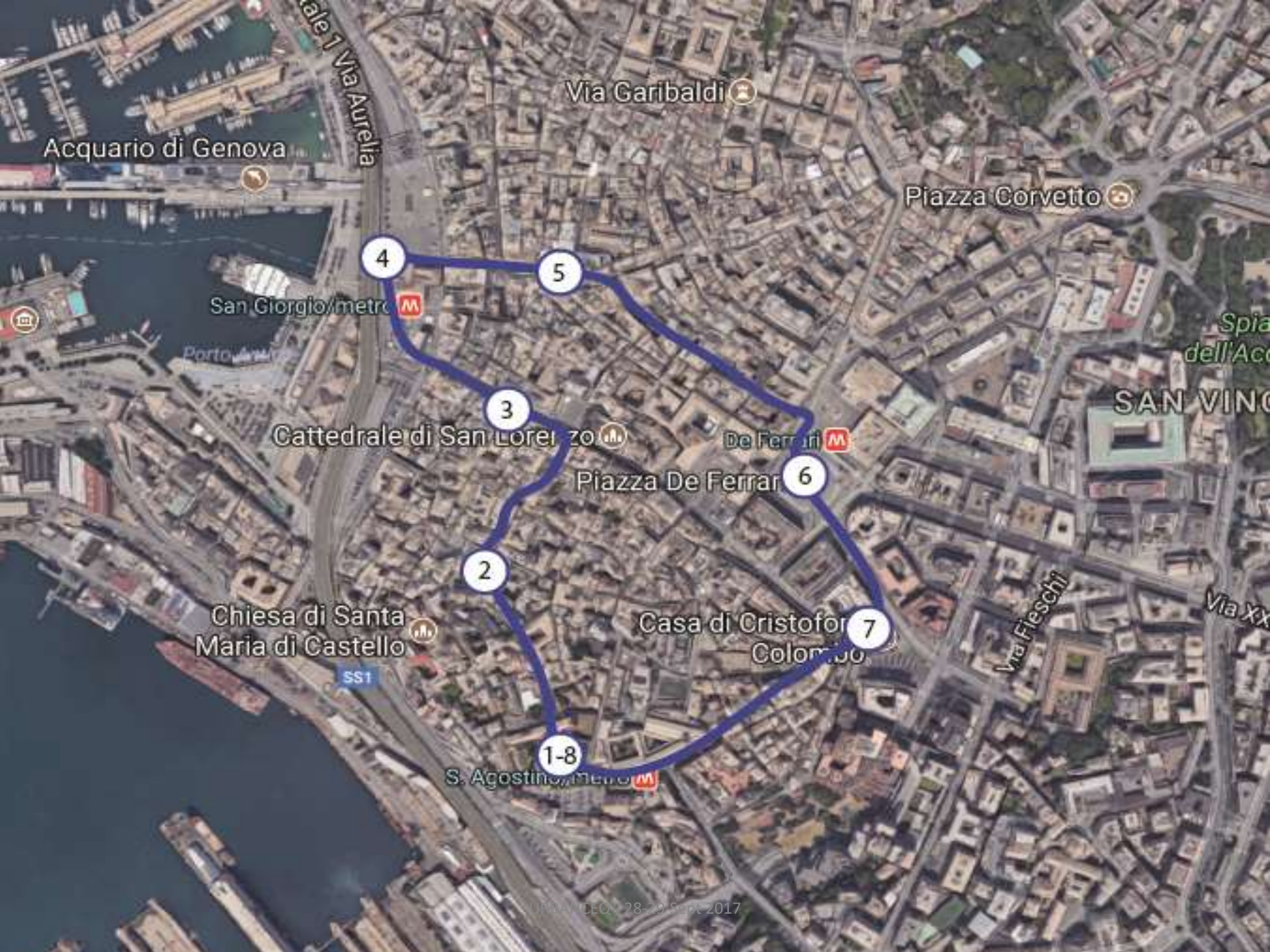


View Responses



View Map





Acquario di Genova

Viale 1° Settembre
Viale 1° Settembre

Via Garibaldi

Piazza Corvetto

San Giorgio/metro

Spia
dell'Acq

SAN VINCENZO

Cattedrale di San Lorenzo

De Ferrari

Piazza De Ferrari

Chiesa di Santa
Maria di Castello

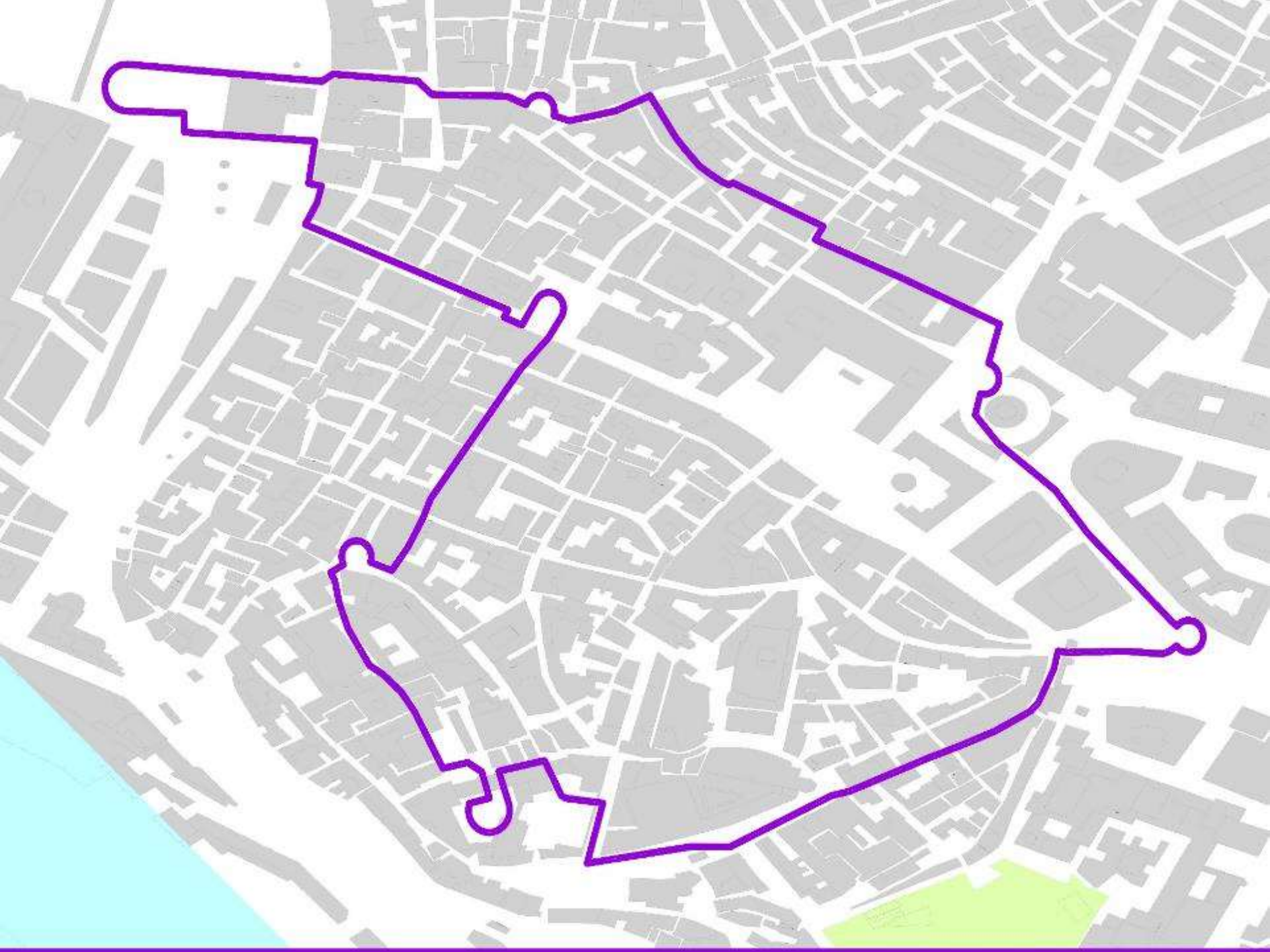
SS1

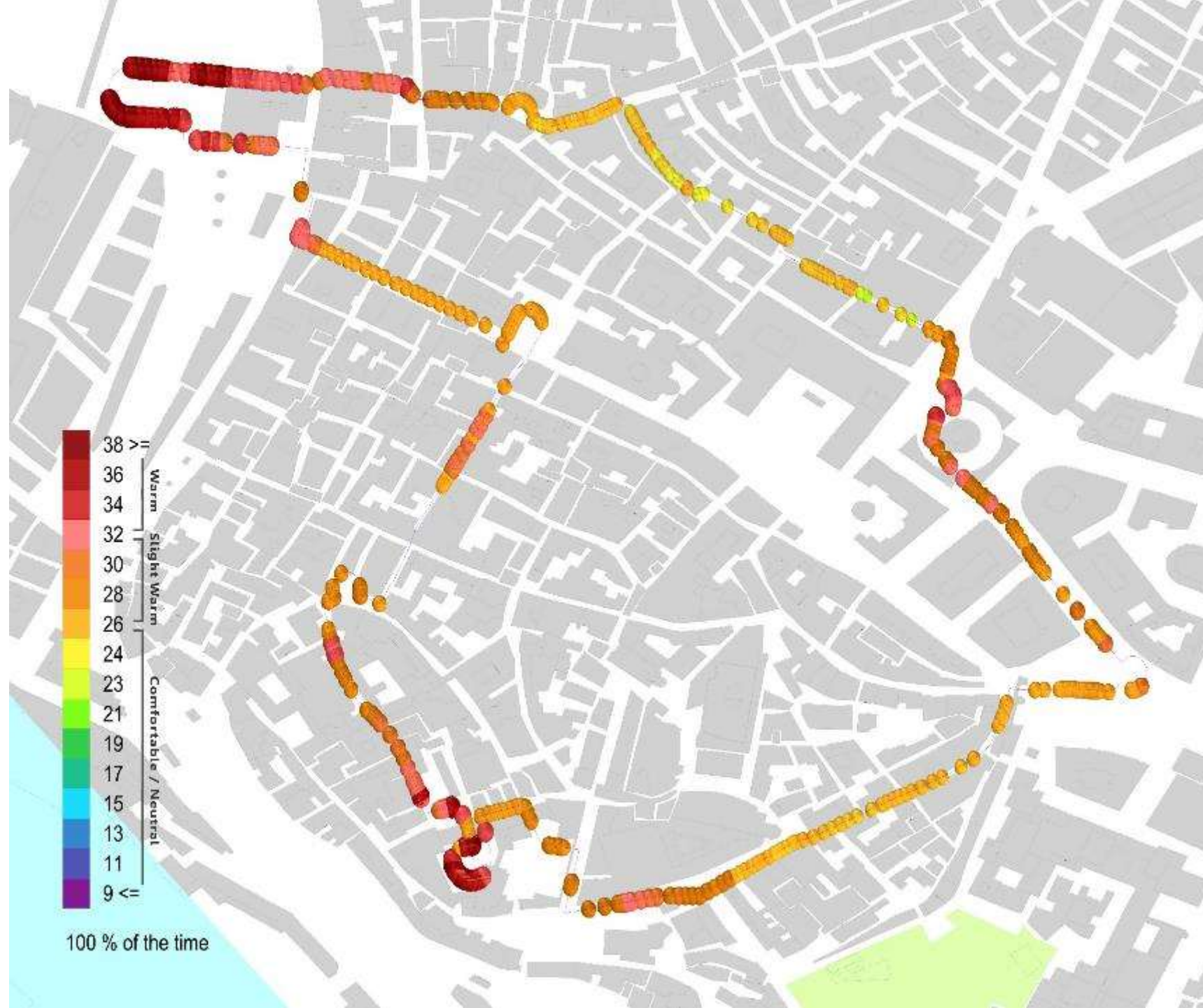
Casa di Cristoforo
Colombo

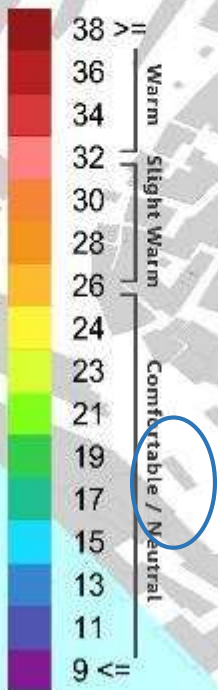
Via Fieschi

Via XXV

S. Agostino/metro







13 % of the time



TVK

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Place de la République







