

# A sensory map for Rennes railway station

## 01 Analysing extreme heat periods

### Context

In the summer of 2022, heat waves caused significant overheating in the hall of Rennes railway station, with temperatures reaching up to 45°C. These extreme conditions severely disrupted operations, leading to passenger discomfort, delays, and also difficulties for the retail businesses.

SNCF Gares & Connexions commissioned AREP develop adaptation plans for the railway station, in response to future heat waves. The approach is based on two complementary studies: a climate analysis conducted by AREP L'Hypercube and a sensory diagnosis carried out by AREP Design.

**Project client:** SNCF Gares & Connexions: Direction Régionale des Gares Bretagne – Centre - Val de Loire – Pays de la Loire and the CSR Department

**Project Management:** AREP Design Departement & the Hypercube studio

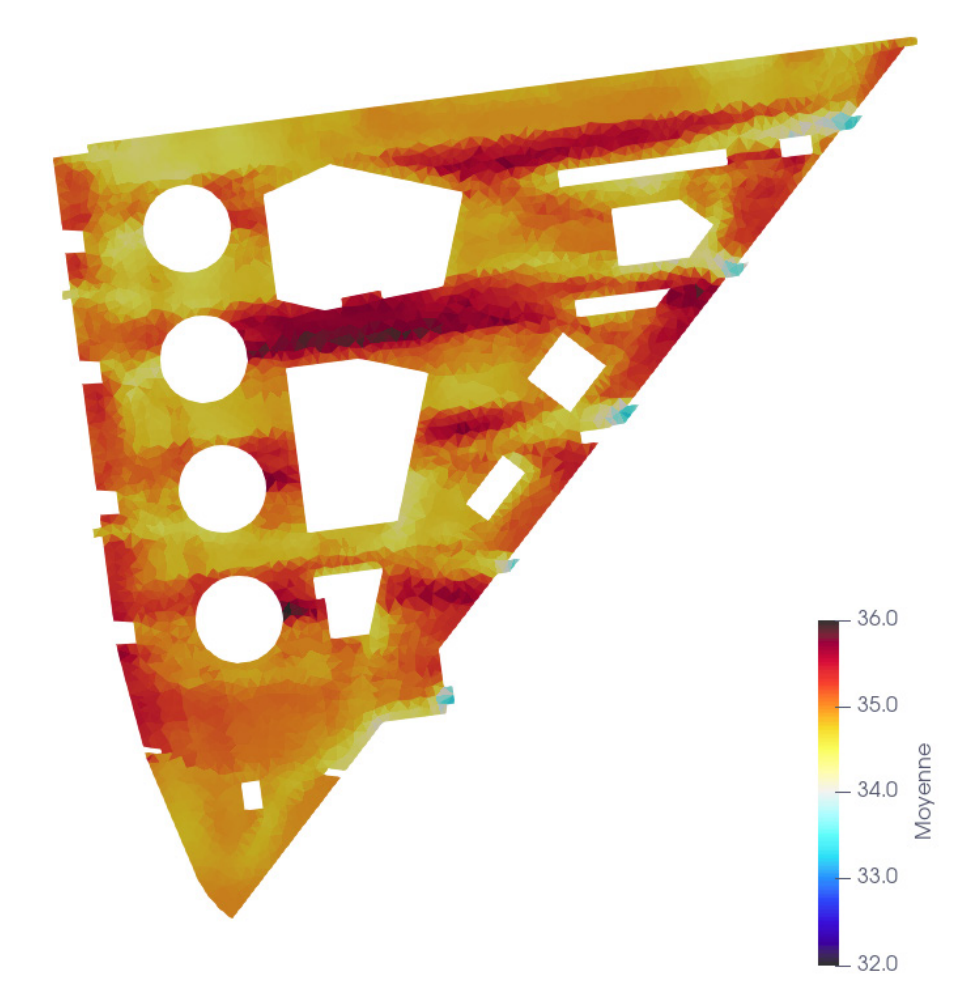
**Delivery:** 2024



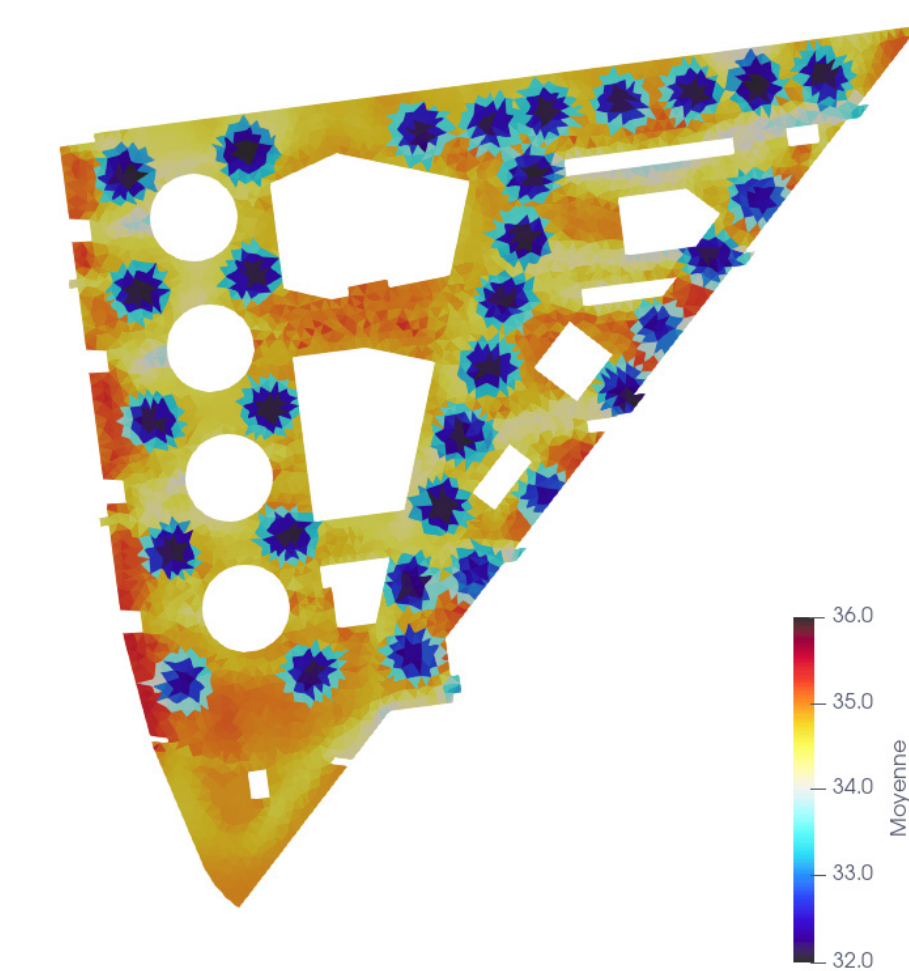
Perceived comfort - Scenario with air circulators (AREP l'Hypercube)

### Climate analysis by AREP l'Hypercube

- › Multiphysical climate analysis using digital simulations to assess thermal exchanges, solar flux, and airflow dynamics.
- › Evaluation of overheating impacts and testing of mitigation strategies (natural ventilation, air circulators, solar shading).
- › Integration of human metabolism models to translate data into perceived comfort levels.
- › Main goals: identify discomfort zones, understand causes, and optimize climate adaptation plans.



Perceived comfort averaged over the hottest week of the year (AREP l'Hypercube)



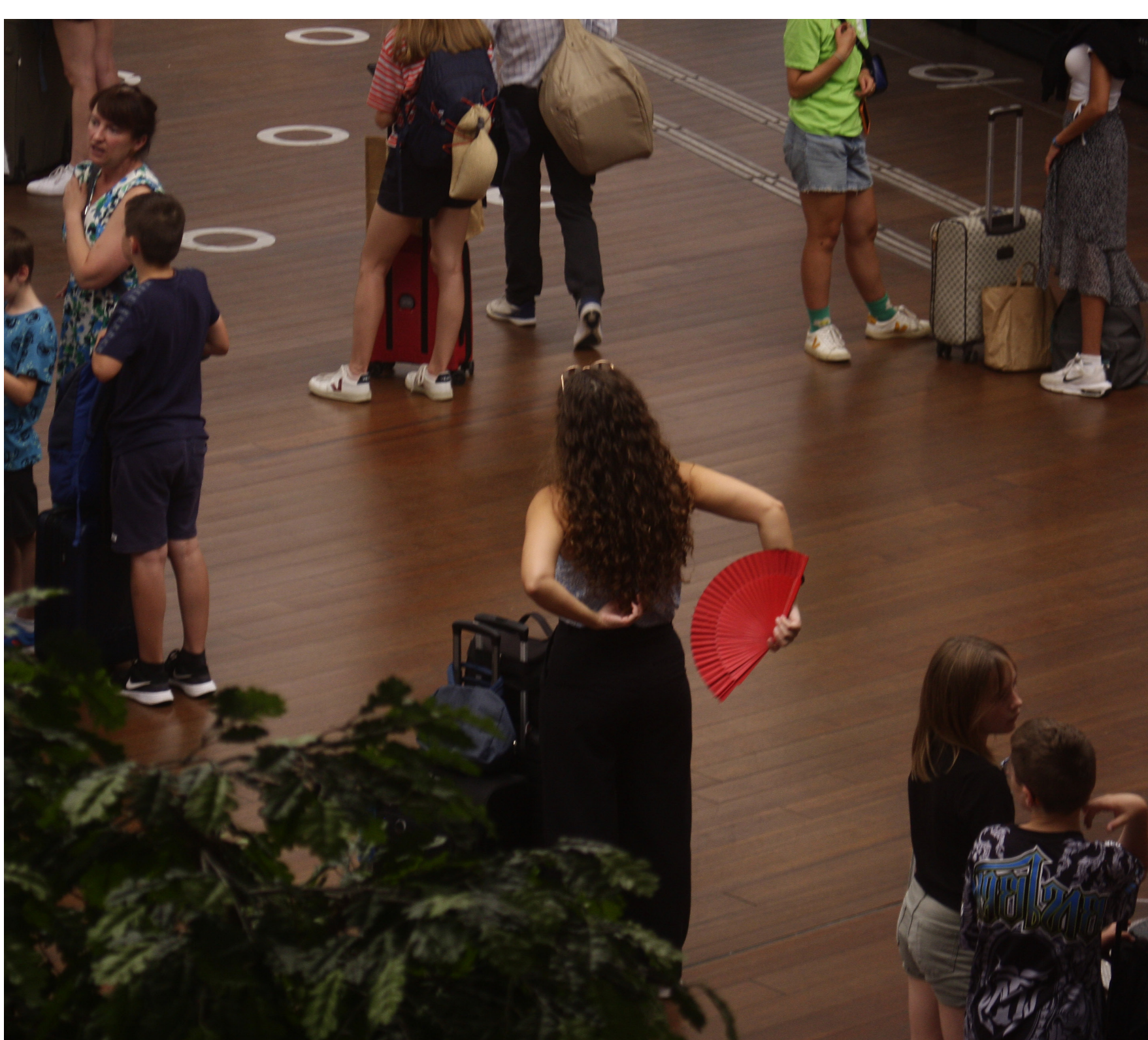
Perceived comfort with the integration of air circulators (AREP l'Hypercube)

### Additionally a sensory diagnosis

- › Sensory diagnosis analyzes users' and staff's subjective perceptions of heat in the railway station.
- › Key focus areas: adaptation of practices, space usage during extreme heat, and testimonies on perceived comfort.
- › Identification of vulnerable areas and initial recommendations for improving thermal comfort.
- › Proposed actions: organizational adjustments, space design, cooling systems, and flow management.

### Methodology

- › Qualitative interviews with staff and service providers (maintenance, management, security, boarding, etc.).
- › Semi-directive interviews with Rennes residents and regular station passengers.
- › On-site immersion during extreme heat, including a 'Station Office' for open sessions and spontaneous exchanges with passengers.



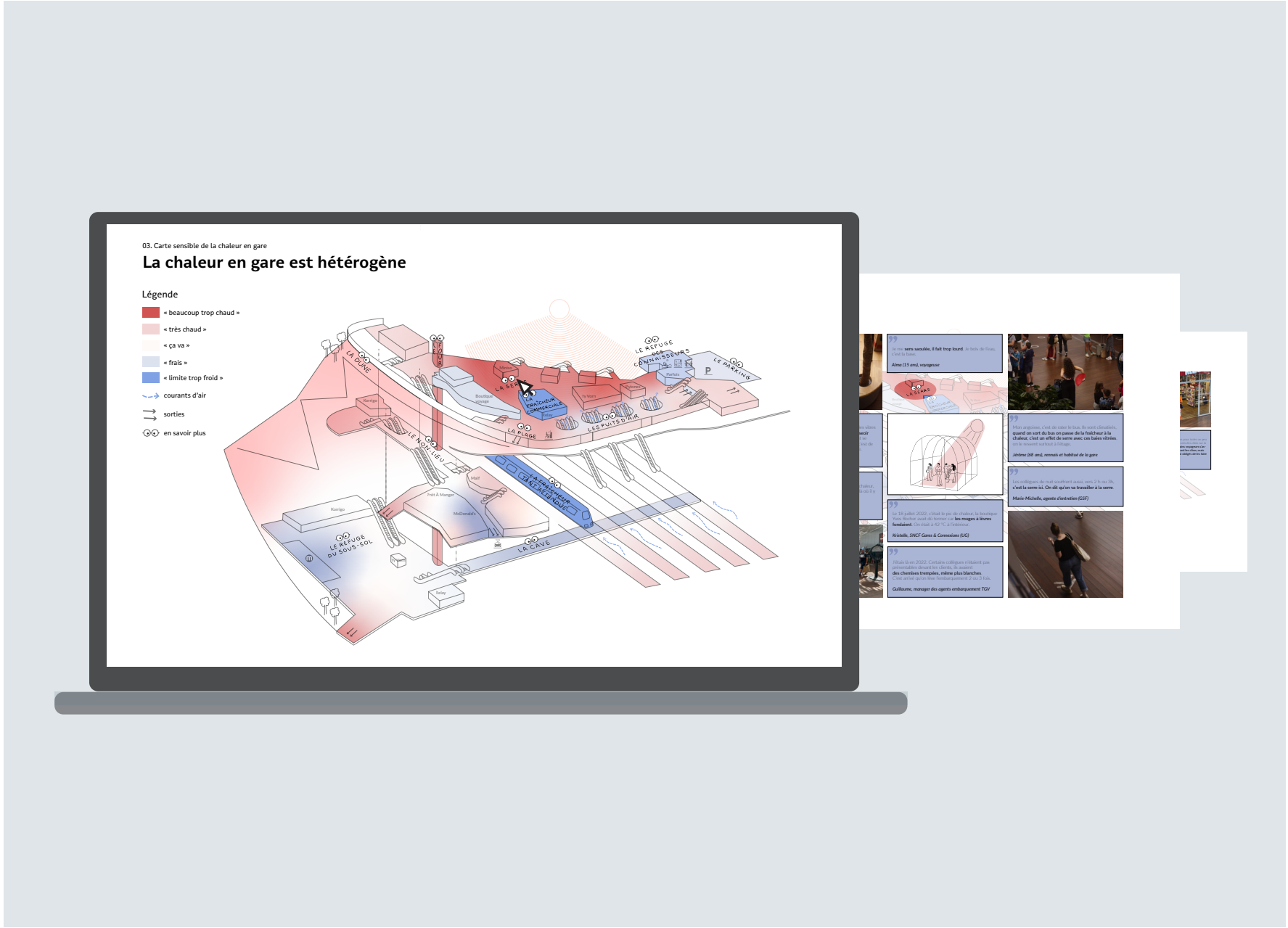


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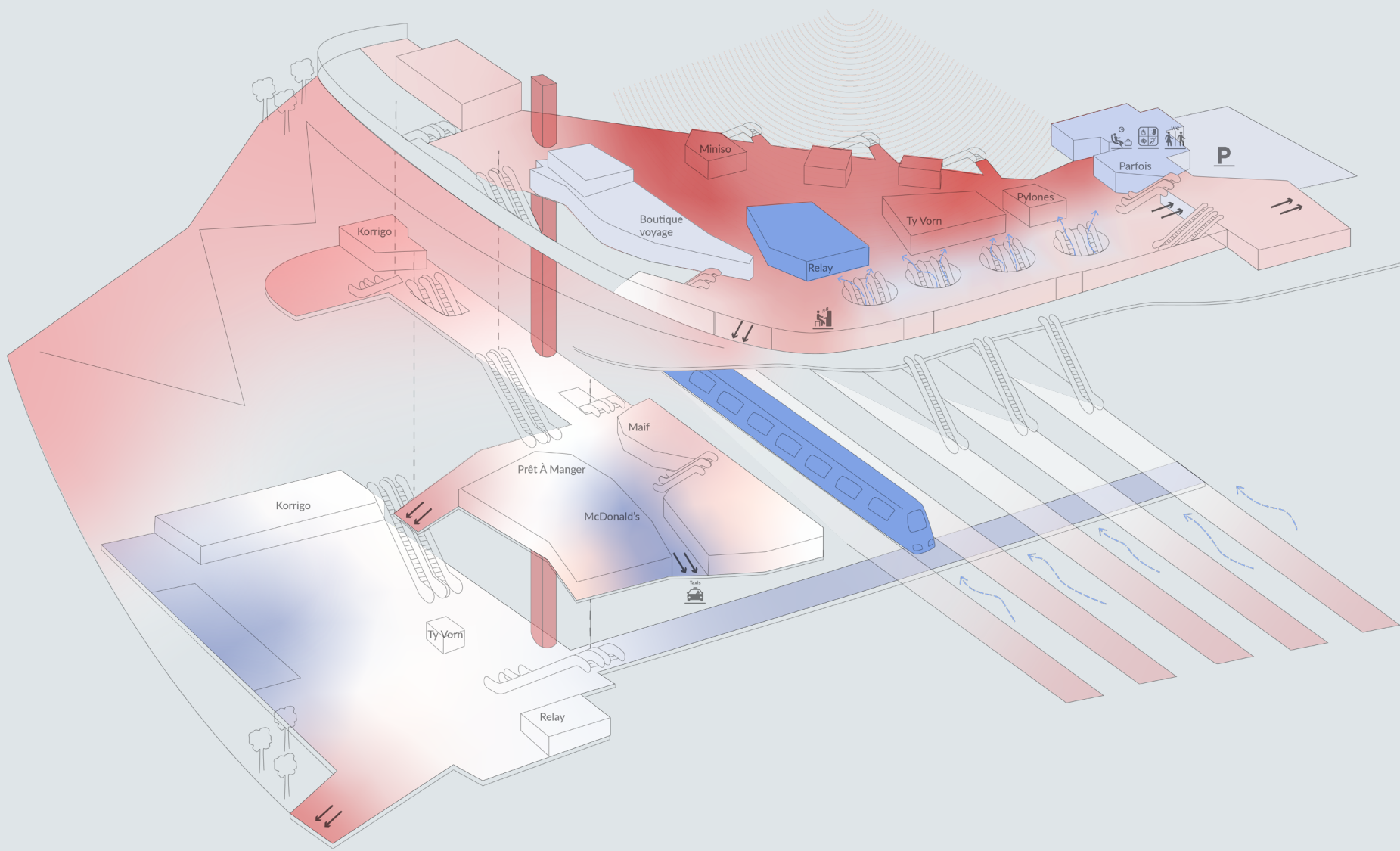
## 02 Representing perceptions during extreme heat periods

### A Sensory Map

- › Testing of a new graphic format: the ‘Sensory Map’, an axonometric drawing illustrating subjective comfort perceptions in the railway station.
- › A qualitative, non-factual representation that shows perceived thermal atmospheres, highlighting discomfort zones and fostering empathy.
- › Appreciated by clients and partners for making sensory, often-overlooked elements visible and actionable in decision-making.
- › Facilitates understanding of complex information and synthesizes informal but crucial data into impactful mental images (e.g., “the main hall is like a greenhouse”).
- › Inspired by illustration and comics, this approach reinvents traditional technical representations to better convey user experiences in public spaces.



### Graphic system used for the Sensory Map



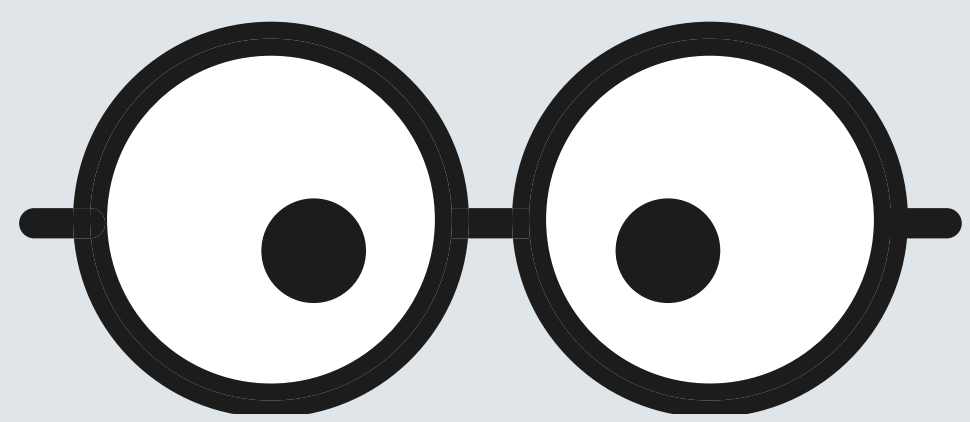
An axonometric map of the entire area to make it more understandable for everyone.

- « beaucoup trop chaud »
- « très chaud »
- « ça va »
- « frais »
- « limite trop froid »

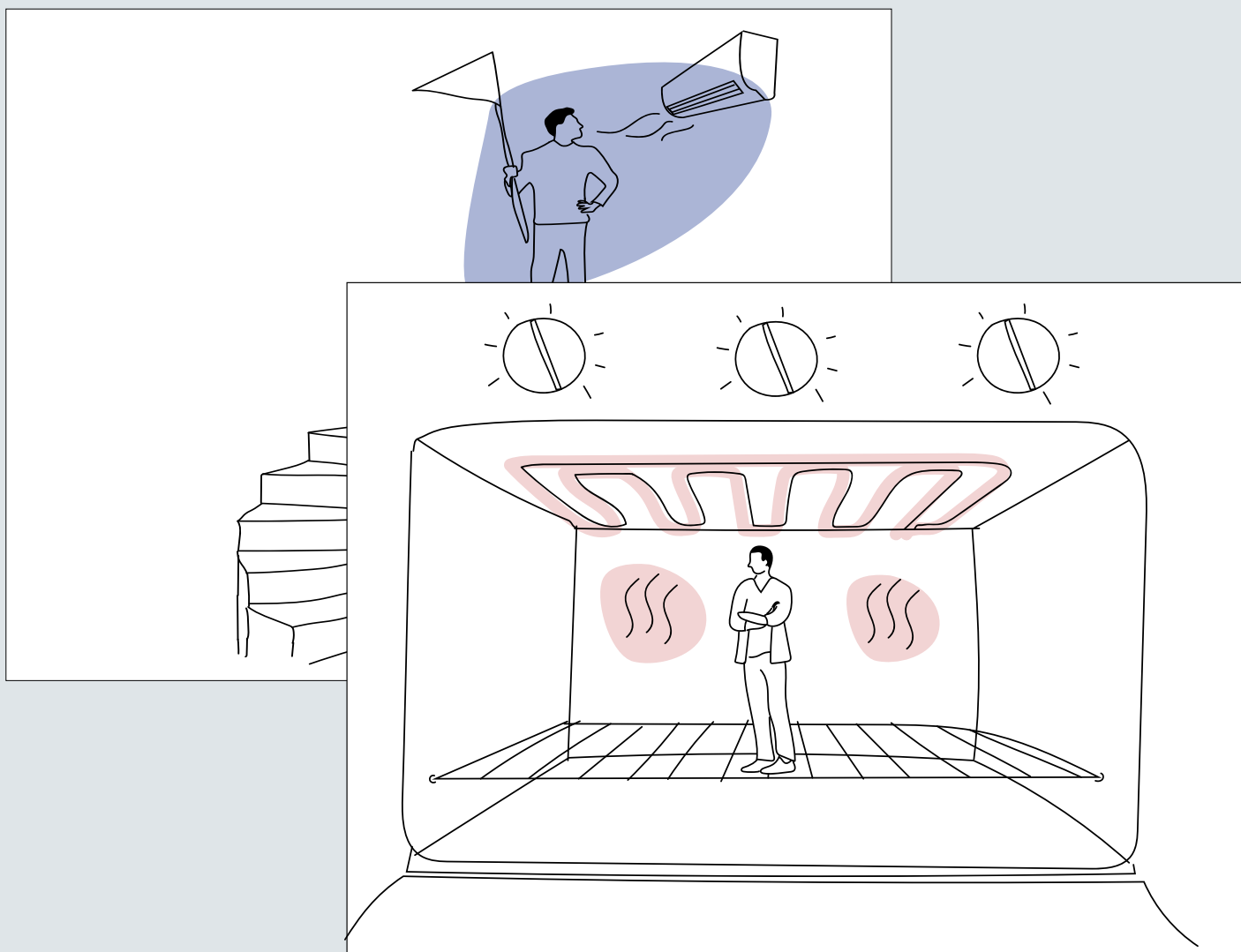
A color legend of the axonometry that does not correspond to measured temperature but to perceptions, expressed in the form of quotes.

LE FOUR LA SERRE  
LE REFUGE  
DU SOUS-SOL  
LES PUIITS D'AIR  
LE REFUGE  
DES CONNAISSEURS

A handwritten script to enhance the sensory dimension of areas perception and the imagination it evokes, moving away from the technical and conventional toponymy of stations (hall, underground passage, forecourt...).



A glasses icon inviting the user to hover over and take a look.



Line drawings illustrating the dominant feeling for each area.



Photos of travelers and spaces illustrating postures, attitudes, and space usage during periods of extreme heat.

“ C’est la foule qui renforce la chaleur. Je fuis les vitres et les endroits ensoleillés. Je veux juste mon train. ”  
Emilia (25 ans), voyageuse et habitante de la gare.  
“ En 2022, en passant la porte, on était assommés, il faisait 40 °C au soleil. C’est comme s’il faisait 50 °C dès qu’on sortait. ”  
M<sup>c</sup> “ Les collègues de nuit souffrent aussi, vers 2 h ou 3h, c’est la serre ici. On dit qu’on va travailler à la serre. ”  
Marie-Michelle, agente d’entretien (GSF)

Excerpts from interviews with travelers and staff, describing the areas through anecdotes, feelings, and emotions experienced during heatwaves.