

HOT COLD

Phillippe Rahm's architecture as meteorology

— architecture should no longer build spaces,
but rather create temperatures and atmospheres

experience
technology
climate
modification
temperature

Paris-based Swiss architect Philippe Rahm proposes a new way of looking at architecture, beyond mere building, beyond modernist ideals that he claims have created 'petrified narratives of social, political and moral conventions'. Atmosphere, weather, diet, climate and neurology are explored in Rahm's pioneering and controversial installations, creating debate about new forms and purposes of architecture.

At the 2008 Venice Architecture Biennale, curator Aaron Betsky argued that architecture is more than just building: 'architecture is everything that is about building. It is how we think about building, how we draw buildings, how we organise buildings, how buildings present themselves, through façades or interiors'. Betsky selected Rahm's *Digestible Gulfstream* for the Arsenale exhibition 'Experimental Architectures' because it highlights the architectural possibilities of taste, touch, smell, light and temperature. *Digestible Gulfstream* is composed of two metal plates at different heights and temperatures (the lower is heated to 28°C and the upper is cooled to 12°C) that naturally moves the air using convection to create a gulfstream effect. Rahm's invisible landscape is heightened with taste and smell with mint on the cooler plate (menthol causes sensations in the brain as coolness, perceptible at a temperature of 15°C) and chili on the lower plate (capsaicin activates the neuro-receptor TRPV1, which is sensitive to temperatures over 44°C). Rahm calls this project 'the prototype for architecture that works between the neuralgic and atmospheric, developing like a landscape that is simultaneously gastronomic and thermal'. Here Rahm links the body (diet) and the outside environment (atmosphere).

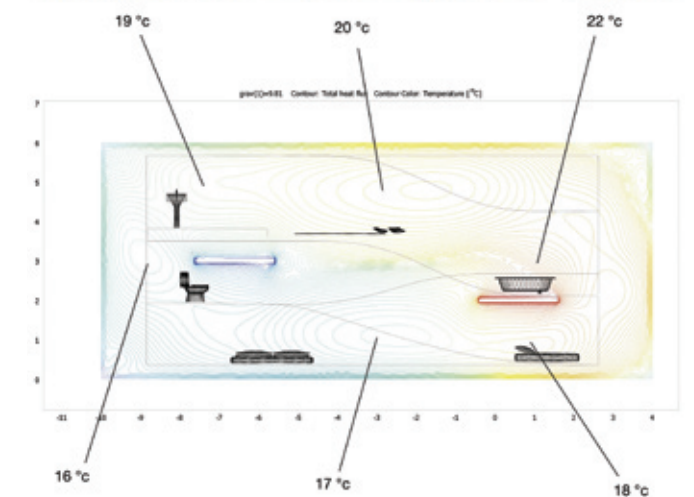
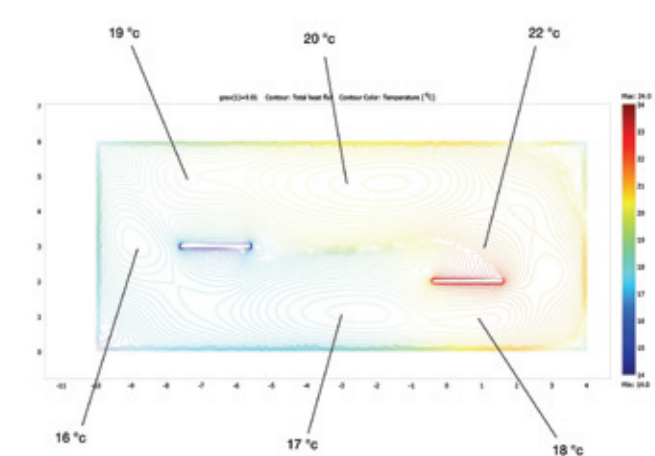
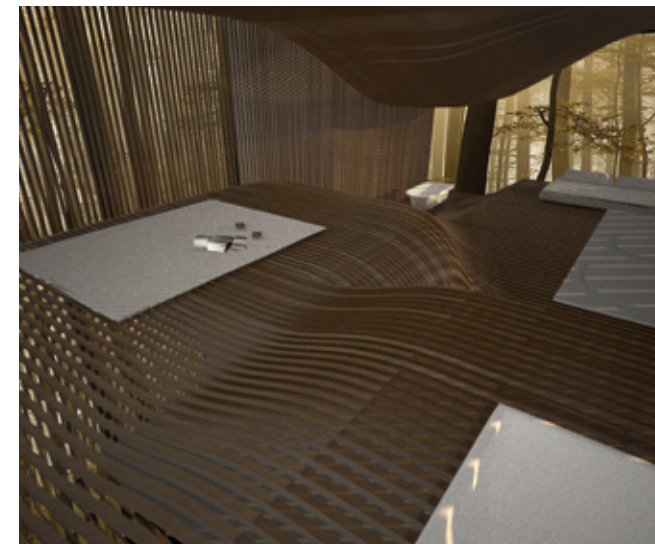
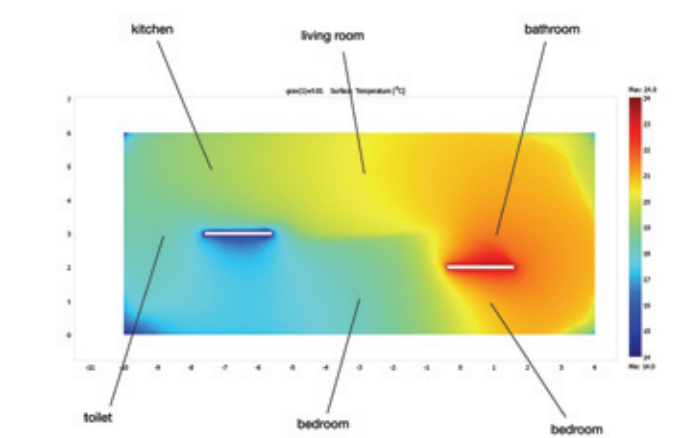
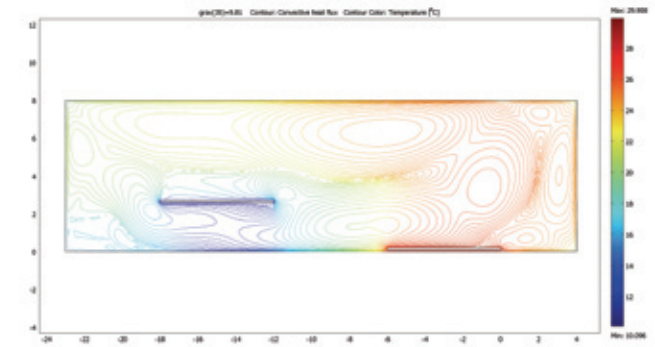
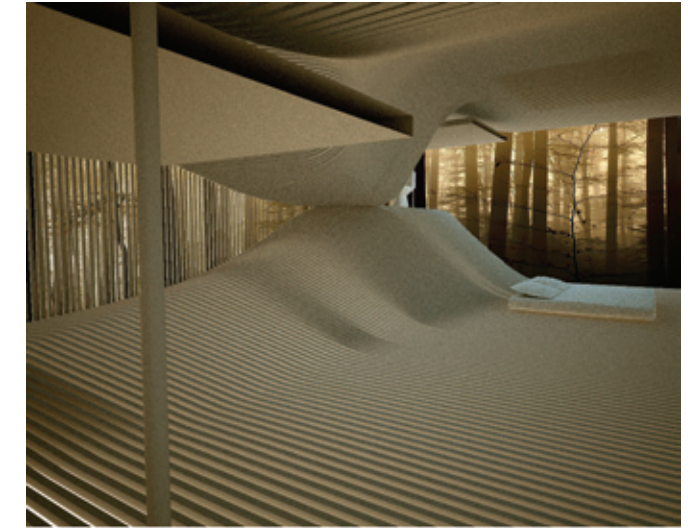
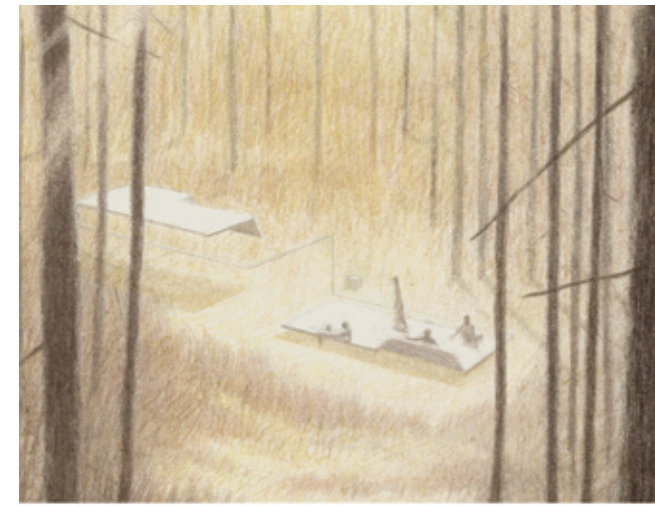
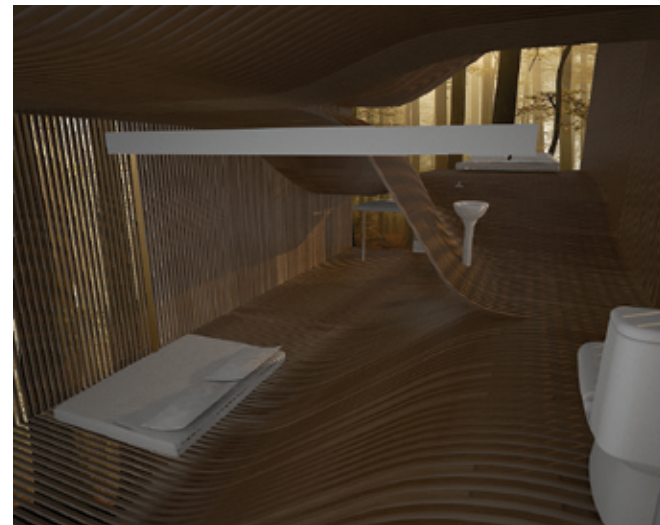
Rahm's concerns are the invisible parts of experiencing a building, and in bringing the invisible to the forefront. "After decades devoted to the visible, in which a subjective approach and "storytelling" shamelessly replaced the progressive and moral programs of modernity, we are now in a new and extremely interesting period." he says. Currently, when architects speak of weather or climate it is about controlling, taming or blocking out interaction with it. Solar shading, thermal insulation, weather and moisture barriers, we try to protect building inhabitants from any non-standard environment that could be too hot or too cold, but are we really making people more comfortable?

Rahm customises environments with weather, using it as a design tool — at the heart of his work is the questioning of the standard 20° temperature found in every modern building. Architects would rarely think that one standard lighting strategy or sectional relationship would be ideal for all parts of an environment, so why should temperature be any different? Perhaps it has to do with the fact that we can't see temperature, like we can, say, light

or form, and it cannot really be drawn (except as blue arrows for cold air or red for hot). Temperature is rarely considered or communicated in architectural drawings and does not play a part in mainstream architectural design. Perhaps temperature is like acoustics, it is not part of the standard architects' toolkit of space, light and form, so it is easily ignored, with design control passed off to engineers or worse, to chance. It only becomes part of architectural design when it needs to be dealt with after the fact, when retrofit solutions are necessary. Rahm is optimistic that change is required and that architects are going to experiment with new architectural solutions. 'A slippage of the real, from the visible toward the invisible, is taking place — a shift of architecture toward the microscopic and the atmospheric, the biological and the meteorological'.

Rahm's 'invisible' architectures have been exhibited extensively, including at the CCA in Montreal, Centre Pompidou in Paris and Mori Art Museum in Tokyo. This year his work will be exhibited at the Milan Furniture Fair, FORCE DE L'ART 02 in the nave of the Grand Palais in Paris and Louisiana Museum in Denmark in their summer exhibition 'The Future Has Arrived-Architecture for a sustainable world'.

this page below and opposite: Gulfstream: temperature as a design criteria, like light, space and form, rather than an afterthought. Must every room be the same 20°? No. At the 2008 Venice Biennale, Philippe Rahm's installation 'Digestible Gulfstream' created a micro-climate that relates temperature and gastronomy to spatial experience, with two glossy white temperature platforms providing setting for the opening night performance where naked people played saw and guitars to an amused audience (overleaf). The technology behind 'Digestible Gulfstream' is simple, the lower plate is heated to 28 degrees, sprinkled with chilli peppers and the top plate is cooled to 12 degrees with mint. The work challenges people to think differently about temperature, and consider it as a varying and dynamic part of spatial experience.



language + temperature

tp: How did you discover the tools for experimenting with temperature and bringing it into your design approach? You use colour and drawing as a tool, as well as thermal modelling (using colours for coding there as well). How do you creatively visualise this process of thermal modelling?

Rahm: Architecture is a question of void. And of course the void is not empty. It's full of chemical and physical particles, electromagnetic waves, vapour and temperature. I use a digital tool, physics software, to study the thermal landscape created by the placing heat sources.

tp: So how do we begin to develop a visual language for temperature, humidity, and climate? Is a new visual language necessary?

Rahm: Yes. For the moment, we use the tools of thermal and meteorological software. But more far from this, there is the fact that working on invisible parameters of space change the way of designing the plan and the section. I like this change of paradigm.

tp: Your work is often about ephemeral experiential qualities as they relate to architecture and space — areas that we don't really have a (verbal) language for as architects: taste, smell and temperature.

Rahm: You are absolutely right. Sometimes it's difficult because it's so tiny and of course not so spectacular as image. But the most interesting for me is really to develop a new language, to be in this research of new tools and new sensation. We must create a kind of new dictionary, new codes, for projecting architecture as meteorology.

comfort + architecture

tp: How important is comfort?

Rahm: Comfort is not the most important thing. I'm against the modern idea of a fixed state of comfort. I don't want to get to a fixed continuous and homogeneous state of comfort. I'm working on a thermal concept, more related to sensuality. I like the idea that space is not defined only by walls, matter and color but also by temperature, relative humidity, and light. It's open to a more sensual approach to space, where the body is completely immersed into architecture, through all senses.

tp: With the Digestible Gulfstream project, how did you experiment with ideas of thermal comfort and what did you see as outcomes?

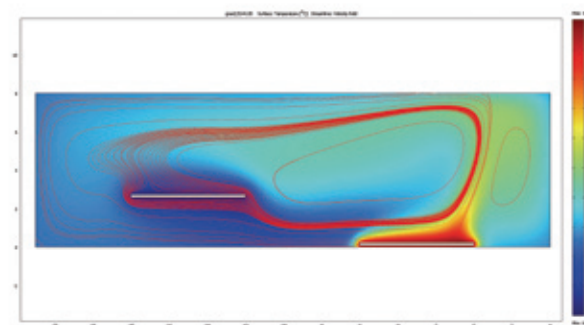
Rahm: The thermodynamic imbalance created with the two thermal sources generates a complex and imbalanced thermal landscape between the two different temperatures. I like that people are free to change places as a natural migration inside the climate.

tp: What do you think about how comfort is described and communicated in architecture? How do we currently measure comfort? How should we?

Rahm: We have to reduce the energy consumed in buildings for heating and cooling because it's one of the most important causes of global warming. This is why we are looking at the lowest level of comfort, to economize energy. We don't have to think of the idea of comfort as a norm. Inside the building you could also create an uncomfortable space. This is also architecture.

tp: So you are seeking to challenge these notions of comfort at all costs?

Rahm: All the new constraints related to global warming and sustainability do not have to stay as problems. They have to become tools for architecture. The goal of my architecture is not comfort. Architecture is a composition between, sustainability, physiology and meteorology. *



above: Digestible Gulfstream installed at the Venice Biennale: the hot and cold plates indicated in the temperature drawings are shown here. The hot plate is the low one with the people sitting on it, clearly happy to be naked in a perfectly tempered climate in the generally underheated air of the Arsenale! The gulfstream current is created from the temperature differential between the two plates.

Image courtesy: Fondazione La Biennale di Venezia, Photo Giorgio Zucchiatti.
This installation was part of the 11th International Architecture Exhibition of la Biennale di Venezia.