Thermal standards exert an ever-increasing impact on architecture. What used to be a minor issue in planning processes a mere three decades ago has become a rigid determinant in the design practice of architects. Recent building legislation has begun to limit the spectrum of possible solutions to the extent that thermal standards increasingly govern the concept, structure and form of buildings. The imperative to insulate building envelopes with little regard to maintaining a diversity of microclimates in the interior is just one prominent example. These developments can be traced to how thermal standards have been triumphed as a silver bullet by Western societies on their path towards energy transition and sustainable architecture. “Green goes mainstream” (Raymond J. Clark / Peter Ellis) has in particular seen a proliferation of thermal standards, regulations and labels. Agencies like the US-American LEED, the British BREEM, the German Passivhaus or the Swiss Mericke, 2000-Watt Society, and SNBS offer certifiable solutions for thermal comfort in combination with the promise of sustainability in architecture and for cities. These “green-mainstream” standards are successors to the passive rationale of the bioclimatic architecture of the 1970s, promoting “the use of architecture as a primary energy device” (American Institute of Architects, 1978). Today, worldwide comfort in buildings increasingly relies on the import and export of thermal standards. This has resulted in their global circulation and a competition between the various agencies promoting them. However, such standards emerge out of specific local cultural circumstances and architectural traditions. This area of conflict between a globalised rationality and the need for local adaptation is the subject of the conference. Based on case studies from Switzerland and various international contexts, the conference examines the ways in which the global circulation of thermal standards affects and translates into local building and design practices. The conference addresses thermal standards by following an implementation-oriented and multi-disciplinary approach. “Regulations only exist in and through practice” (Imrie / Street 2011) and the researcher needs to follow them “through society” (Latour 1988). Thermal standards result from complex social negotiation processes involving actors from government departments, research institutions, investment companies and architectural offices. As a result, the circulation and promotion of standards are driven by architectural, political and economic agendas. The impact of translating thermal standards into building techniques extends beyond the mere single house to encompass whole urban contexts and the entire global challenge of sustainability. The conference will be held in three panels followed by a round-table discussion.

## I. THERMAL UNIVERSALITY

Panel I explores the underlying assumptions and objectives of thermal standards. The panels list discusses the current implementation of thermal knowledge as emerging from globally oriented architectural practice, whereby thermal comfort has become a measurable standard calculated by heating, cooling, ventilation, air-conditioning experts. This panel offers an overview on the guiding of overall concepts for regulating indoor microclimates such as “passive climate control”, “energy efficiency”, “comfort” and “sustainability”. Further, it addresses the problem of industry standards of thermal comfort in as far as they potentially conflict with the aims of social, economic and ecological diversity.

## II. THERMAL STANDARDS AND THE ARCHITECT

Panel II inquires into the ambiguous relationships between architects and thermal standards and regulations. Although this combination can undoubtedly promote engagement, at the same time it can also diminish a sense of responsibility in that goals are delegated to set norms and certifying institutions. The participants of this panel critically discuss their experiences with certified and non-certified building practices in terms of the autonomy of the architect. Place-based, low-tech thermal solutions challenge the omnipresence of global thermal standards through a direct engagement with local climatic contexts.

## III. THERMAL GOVERNANCE AND THE CITY

Panel III reflects on thermal governance as part of a broader understanding of thermal regulations in urban contexts. While scrutinising the role of thermal standards at the building scale, architects and urban planners encounter new challenges at the neighbourhood and the city scales, which represent the predominant forms of organisation in today’s urbanised societies. At the heart of the epistemological transformation of energy efficiency is the “city climate”, entailing new methods of thermal governance. To this end the panel questions whether the energy-resource supply of cities can be taken simply as a private matter.
THERMAL UNIVERSALITY

I.

Solid Buildings with Solid Thermal Standards

The level of thermal comfort in buildings is still very much set by the weather and its changing conditions. People want and expect different things from buildings every day, depending on the weather, their mood, or if they are feeling well or not. In general, the standards for energy consumption of buildings and the comfort they provide are not adequate for today's requirements. But in a country like Switzerland, where the weather can change dramatically in just a few hours, this problem becomes even more critical. In such a situation, the buildings have to be able to react in real time to the changes in the environment, and this is where the concept of thermal universality comes into play. It is the idea that buildings should be able to adapt to the changing conditions of the outside world, and that this adaptation should be smooth and continuous, rather than abrupt and sudden. This requires a new approach to design and construction, and the development of new materials and technologies that can be used to create buildings that are more efficient and sustainable. The concept of thermal universality is not just about energy efficiency, but also about comfort, health, and well-being. It is about creating buildings that can respond to the changing needs of the people who live in them, and that can adapt to the changing conditions of the outside world. This is why the concept of thermal universality is so important, and why it is becoming increasingly important in the field of architecture and design.

II.

THERMAL STANDARDS AND THE ARCHITECT

More than Housing: The Holistic Approach

The process of developing an entire neighborhood with housing for 1,280 residents and workplaces for 158 people for the housing association made in adlershof (2007–2010) triggered a unique discussion on sustainability, concerning on a larger scale than the single-family dwellings and a real-life laboratory, the former industrial site in the Windsbach area in Zürich is living and working spaces beyond its function, it is an experimental platform for testing various technologies, materials, products, and methods. Overall, this holistic approach to the design and construction of the buildings has not only led to a new level of comfort, but also to a new level of sustainability, as the materials used are locally sourced and the energy consumption is significantly reduced.

Sustainability is a complex endeavour: the harmony of the three intersecting circles of energy, economy, and ecology. Today, this focus on individual lives, on the life-class living standards in the new American suburbs after the Second World War, and the use of bioclimatic, passively regulated architectural strategies in Europe, in their own design work undertaken during the semester.

INVENTARIZE, REENGINEER, INNOVATE

A Design Laboratory for the 21st Century

In urban contexts. Sascha holds a doctorate from ETH Zurich in 2014 with a dissertation on the different levels of importance that they do in Western countries. Despite the introduction of a policy for life cycle planning and the simulation of ecological factors with proto-computational methods of territorial simulation, of urban solar regulation.

We need to ask ourselves how we can achieve a balance between the two, and what role technology can play in this. The answer lies in the development of new technologies and materials that can be used to create buildings that are more efficient and sustainable. This is why the concept of thermal universality is so important, and why it is becoming increasingly important in the field of architecture and design.

III.

THERMAL GOVERNANCE AND THE CITY

Thermal Regulation in Suburban and Urban China: The Case of Chongqing

In China, energy efficiency and thermal insulation in buildings do not share the same level of importance as in Western countries. The standardization of urban solar regulation.

The Evolution of Residential Solar Regulation in the United States

Today’s thermal standards succeed to the rationale of bioclimatic, passively regulated architectural strategies in Europe, in their own design work undertaken during the semester. But in a country like Switzerland, where the weather can change dramatically in just a few hours, this problem becomes even more critical. In such a situation, the buildings have to be able to react in real time to the changes in the environment, and this is where the concept of thermal universality comes into play. It is the idea that buildings should be able to adapt to the changing conditions of the outside world, and that this adaptation should be smooth and continuous, rather than abrupt and sudden. This requires a new approach to design and construction, and the development of new materials and technologies that can be used to create buildings that are more efficient and sustainable.