



Pavilion of Reflections, Manifesta 11, Zurich, 2016 [Studio Tom Emerson]

STRATEGY

Department of Architecture,
ETH Zurich



Clay rotunda, SE MusicLab, Bern, 2020-2021 [Chair for Digital Fabrication]

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SUMMARY

The following document describes the strategy of the Department of Architecture (D-ARCH) at ETH Zurich.

- I. It positions the department inside the polytechnical institution and articulates its vision and mission.
- II. It affirms its core values and competences.
- III. It lists the five strategic areas of action:
 1. Answering the Challenges of Climate Change
 2. Fostering Digital Forms of Craftsmanship
 3. Shaping Future Environments
 4. Making the Past Productive
 5. Empowering Design and Construction
- IV. It sketches out the cultural development of the department.

D-ARCH's Strategy Committee drafted the document after department-wide consultations with all the student, teaching and administrative bodies.



Photographical survey of the Semperaula, 2020 [Chair of Construction Heritage and Preservation]
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I. INTRODUCTION

D-ARCH's Position within ETH Zurich

ETH Zurich is its people and architecture. Through its people, new forms of knowledge are created, cultivated and passed on to the next generations. In its architecture, the stability of the institution is materialised. Within the spaces of ETH Zurich, freedom of research can occur and unfold, ideas can be openly and safely debated, and sound opinions can be formed. It is there that our relation to the environment and the way we will live together are envisioned. The school's polytechnic ambition is experienced daily in its buildings and inscribed in the façade of the main building, where science and art, engineering and humanities, all standing on the shoulders of history, are united at the service of a multi-lingual and culturally diverse community. ETH Zurich is spread over various buildings in and around the city, reflecting a new form of networked organisation. These buildings and their adaptations over time give form to the institution's capacity to constantly pursue change while remaining true to its history and mission.

The Department of Architecture (D-ARCH) embodies the values of ETH Zurich. It brings together, within one faculty, the broadest forms of polytechnical knowledge. Its diversity allows it to play a leading role in large research projects and national initiatives funded by the European Research Council (ERC), National Centre of Competence in Research (NCCR), Swiss National Science Foundation (SNSF) and ETH Zurich itself. In its labs, workshops, libraries, collections and exhibition spaces, the built environment is measured, analysed and represented with many different tools and at many different scales. A complex body of knowledge is thus constantly produced, revised and updated, mobilised in the design studios to create visions of the future. The organisation of D-ARCH reflects all these ambitions. Researchers and teachers from the fields of architecture, urban design, landscape architecture, history and theory of architecture, heritage and preservation science, structural design, building technology and computation all work together and strive towards a common goal: to design the built and natural environment holistically. Through research and teaching, D-ARCH aims to equip its students with the theoretical and practical tools necessary to address the most urgent environmental and policy issues. Its mission is to contribute to society by pioneering design and research methods that respond to the challenges of an increasingly complex world.

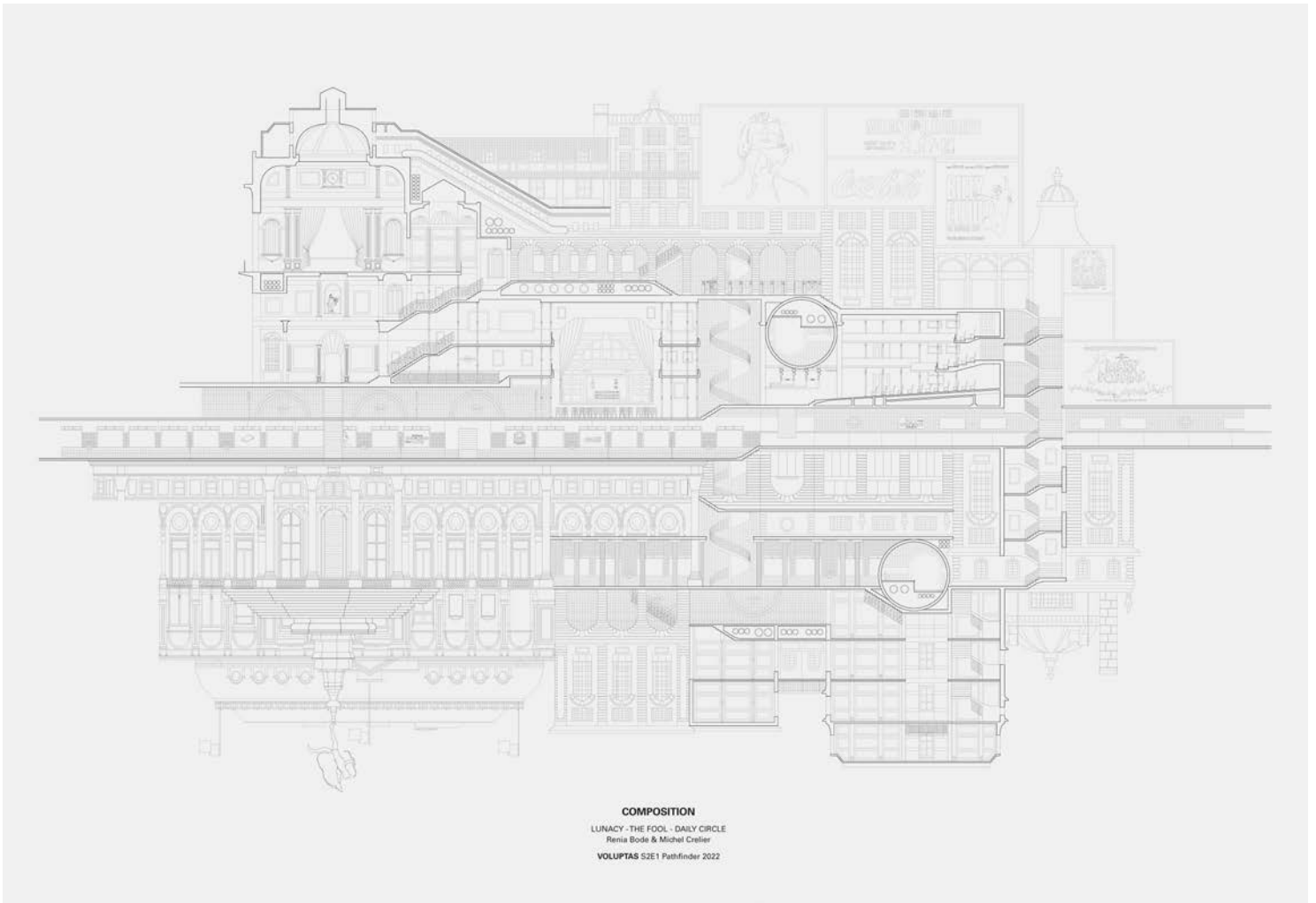
The leading position of D-ARCH has also been acknowledged by a number of the most prestigious international prizes granted to its members over the last two years, including the Pritzker Prize, the Wolf Prize and the Swiss Architectural Award.

Vision

To equip and empower future architects to skilfully and critically engage with our increasingly complex natural and built environment and to propose and design desirable and liveable buildings, cities and landscapes for the well-being of our planet and society.

Mission

D-ARCH is a leading research and teaching institution dedicated to the advancement of architectural design at the building, urban, landscape and territorial scales. Architectural design is fundamentally holistic in that it utilises a broad epistemological and technical apparatus to give shape to cultural, ecological, environmental, social and economic needs. And, by constitution, architectural design is concerned both with the analysis of the past and the making of the future at every scale, from the local to the global.



Renia Bode and Michel Crelier: Picadilly Circus [LUNACY – THE FOOL – DAILY CIRCLE], 2022 [Chair of Architectural Design Voluptas]

II. CORE VALUES AND COMPETENCES

D-ARCH is an outstanding research and teaching environment. Internationally established practicing architects and leading researchers contribute to the development of the broad range of skills necessary to the discipline, fostering an inclusive learning and research environment that reflects the institution's polytechnic endeavour and public role. The studio culture, complemented by a variety of labs, archives, libraries and research sites, is D-ARCH's most valuable asset. It is based on the cultural and intellectual diversity of the student, assistant, professorial and administrative bodies. D-ARCH is distinctive in its academic structure. By combining multidisciplinary and fundamental research with practice and excellence in teaching, the department constantly pushes the frontiers of knowledge while staying true to the core values of design.

At the Service of Society

At heart, architecture is a spatial discipline. As such, it plays a role in today's major societal and political challenges. Social justice and inclusion, ageing, the digital revolution and planetary urbanisation are all spatially driven and articulated – hence the importance of caring about how our spaces are designed, built and experienced at every scale – from the interior to the building, the city and the landscape, up to the territory and the planet. In addition to pioneering solutions in the fields of construction and building systems, the department investigates novel and integrative forms of living in buildings, settlements and landscapes. Its research examines a wide range of issues, from planetary urbanism and smart cities to the history of architecture in local and global contexts. Underlying all its efforts is the idea of housing as a basic human need.

Committed to Durability

D-ARCH is committed to durable architecture over the long, medium, and short term. The *longue durée* of topography, climate and historical memory presents particular challenges to how architecture is planned and executed; the medium term of a building's lifespan is a function of its materials and technical features; the short term of the usages. Research and teaching at D-ARCH critically tackle all these temporalities by considering buildings in their historical, constructive, formal, technological and material complexity. The department's vast knowledge apparatus enables tailored approaches to preserve, improve, reuse and develop existing architecture, as well as to imagine and deliver alternative forms of building and living. Expertise in typology, morphology and topology underpins the study of spatial and metabolic trans-

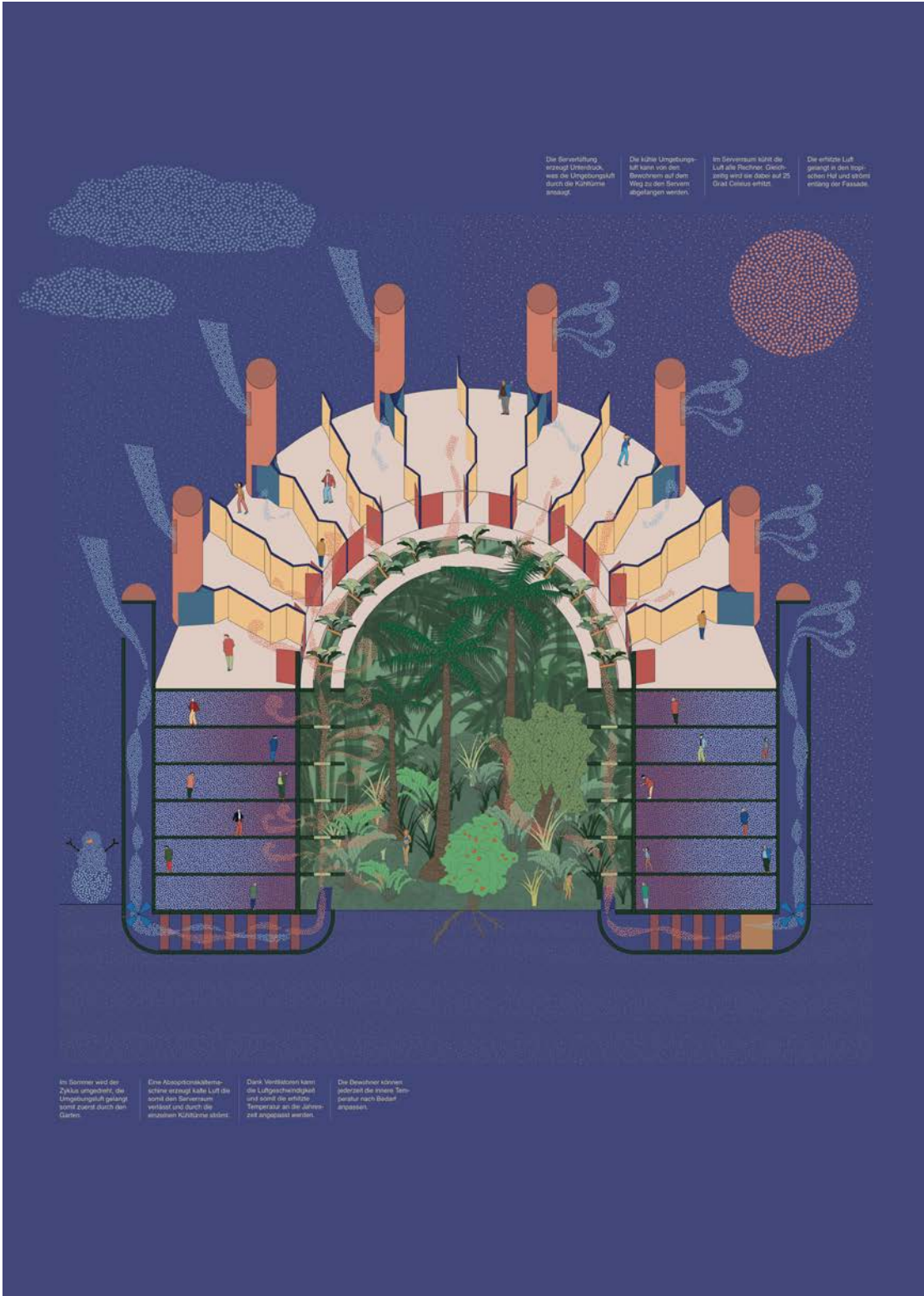
formation within the city and its territory. Competence in building materials and construction science improves the life cycle of buildings and their technical elements. An understanding of cultural, social and environmental phenomena reveals the manifold relations between humans, buildings and the natural world.

Responding to Scarcity of Resources

D-ARCH addresses the fundamental question of the relation of buildings to their place and environment on many different levels. At a technical level, it explores new materials and forms of production, including digital fabrication, innovative concrete-construction techniques and adaptive building systems for energy conservation and carbon reduction. In landscape architecture and urban studies, the department investigates sustainable design approaches, economic and supply chain models for material shortage scenarios, and planning and construction criteria for land-scarce settings. In so doing, the department advances resilient strategies for the built environment beyond short-sighted solutions. Finally, in history and theory, D-ARCH examines how buildings have been imagined, built, promoted, managed and experienced in the past, also focussing on the role that different stakeholders (building materials manufacturers, construction companies, private and public institutions, cartels, lobbies) have played in shaping the built environment until now. It actively commits to reaching out and informing stakeholders and society about sustainable, future-proof architecture and construction.

Mastering Fundamental Skills

Digitisation has spurred a proliferation of design, simulation and fabrication tools in architecture. This proliferation, in turn, has introduced a new set of design and construction skills to the discipline. D-ARCH is actively involved in expanding digital literacy in architecture to survey, design, assess and fabricate the buildings of the future. But cultivating literacy is also key to D-ARCH in a much broader sense. Literacy in drawing and writing are fundamental to conceptualising and explaining architecture and effectively reaching out to peers, the industry and the public. Literacy in architectural theory helps to engage with current practice and propose alternative paths for it. Finally, literacy in design (both analogue and digital) and construction enables an understanding of society's demands and the ability to translate them into well-designed and well-built spaces.



Tobias Saner und Geraldine Storb: Use of waste heat in data centers, 2019
[Chair of Architectural Design / Chair of Architecture and Building Systems]

III. STRATEGIC AREAS OF ACTION

Answering the Challenges of Climate Change

D-ARCH actively addresses the ecological sustainability of the built environment through innovative teaching formats and design studios, master's programmes in landscape architecture and integrated building systems, and in leading research projects such as the Zurich–Singapore Future Cities Laboratory Global (FCL Global), the National Centre of Competence in Research (NCCR) Digital Fabrication, or the Swiss Competence Center in Energy Research, Future Energy-Efficient Buildings and Districts (SCCER FEEB&D).

The challenges facing the built environment, however, are unprecedented. Buildings are among the most significant contributors to anthropogenic greenhouse gas emissions. Buildings, cities and landscapes play a critical role in the necessary transition of the energy system, both through the use and the generation of renewable energy. The warming climate is magnified through the built environment. Cities, buildings and landscapes must thus be designed to mitigate and adapt to climate change to ensure the well-being of inhabitants and society at large. Responding to these challenges in research and teaching is no longer optional but critical for the transformation of the built environment and the role of the architect.

Measures and Initiatives:

- Adopt a holistic definition of sustainability (environmental, social, economic) in design, including alternative practices and theories
- Provide continuous and broad education through literacy and skill sets regarding sustainability, energy and emissions throughout the curriculum
- Implement strategies of regenerative design (i.e. low-carbon construction, resource depletion, operational and embodied energy, lifecycle assessments) in the studio
- Consider the changing climate and the impact of buildings and cities on climatic regulation and comfort
- Actively transform design practices and the building industry towards circularity and scalability of sustainable solutions, both locally and globally
- Acknowledge the role of improving and retrofitting existing buildings, both as an alternative to replacement schemes and as a resource and context



Mariana Popescu: KnitCrete: Stay-in-place knitted fabric formwork for complex concrete structures, 2017 [Chair of Architecture and Structures]

Fostering Digital Forms of Craftsmanship

D-ARCH has pioneered digitisation in interdisciplinary environments, as evidenced by the excellent track record of the NCCR Digital Fabrication, the Design++ Centre for Augmented Computational Design in Architecture, Engineering and Construction and collaborations with industry. The department has also successfully disseminated its findings over the last decade in numerous lighthouse projects (e.g. DFAB House, HiLo), demonstrating the potential of coupling digital methods with state-of-the-art construction expertise.

To advance the digitisation process, the department will foster digital literacy throughout the curriculum. Complementary skills in computational design, data analysis, and advanced modelling and simulation need to be introduced systematically in design and in research. The students will be taught how to use these skills on both new and existing buildings. In research, the department will spur developments in the strategic areas of interactive design, extended reality, machine learning, sustainable digital-fabrication materials, environmental simulation and theory of the digital in architecture. Finally, in terms of infrastructural assistance, the department will strategically support software platforms that have a high impact on teaching, research and practice in the areas of design, planning and fabrication, economics, and data organisation in preservation and historical sciences.

Measures and Initiatives:

- Embrace an inclusive and creative understanding of digital processes in architecture
- Introduce computational education throughout the curriculum and across every scale
- Implement digital literacy in design studio education
- Support software development and maintenance relevant for architectural education, research and practice
- Intensify strategic alliances with key centres, departments and international research institutions
- Intensify qualitative alliances with industry partners



Entanglement of the soil ecosystem, 2021 [Chair for Landscape Architecture Being Alive]

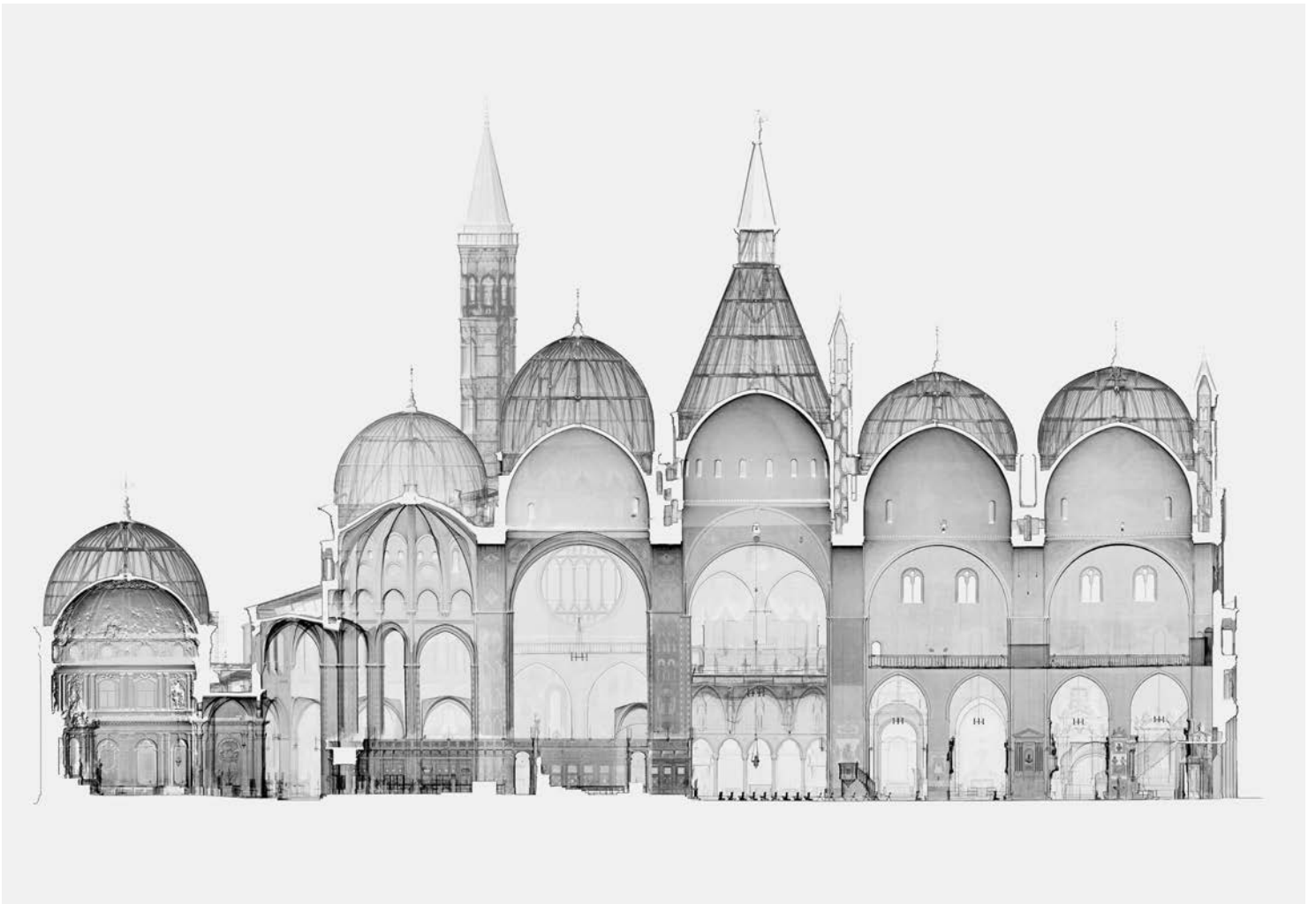
Shaping Future Environments

D-ARCH has a long tradition of excellence in landscape architecture and urban and territorial design. It also holds a strong and proven record in analysing global urbanisation processes, as exemplified by its recent launch of the new master's programme in landscape architecture or its leading role in FCL Global. However, the challenges posed by landscape erosion and by global urbanisation – namely the severe environmental crisis caused by resource extraction, rising social inequality, migration and population ageing – demand that the department steps up its efforts in these domains.

Our aim is to be an international leader in answering to these needs to produce the best possible living conditions for specific geographies and local conditions, whilst simultaneously addressing safety and shelter, wellness and well-being, equality and fairness. For this reason, the department will strengthen its competence in four areas of interest to align its research and design activities: housing; regenerative practices for territories and landscapes; urban transformation; and theory and methods, including analysis of urbanisation processes.

Measures and Initiatives:

- Develop the master's programme in landscape architecture
- Further competence in the field of landscape architecture within the whole D-ARCH and throughout the whole curriculum
- Embed the field of landscape architecture within all of ETH Zurich at the interface between science, humanities and design
- Foster collaborations with public and private stakeholders, as well as within the ETH Domain (D-USYS, D-BAUG, D-MAVT, D-GESS, M-TEC, ISTP) through living lab research, research-based design studios and other formats
- Strengthen synergies with ETH Wohnforum – ETH CASE through collaborations inside and outside D-ARCH (e.g. Housing_lab)
- Promote literacy in socio-environmental issues, critical urban theory and housing across the curriculum
- Foster the integration of socio-environmental issues throughout D-ARCH



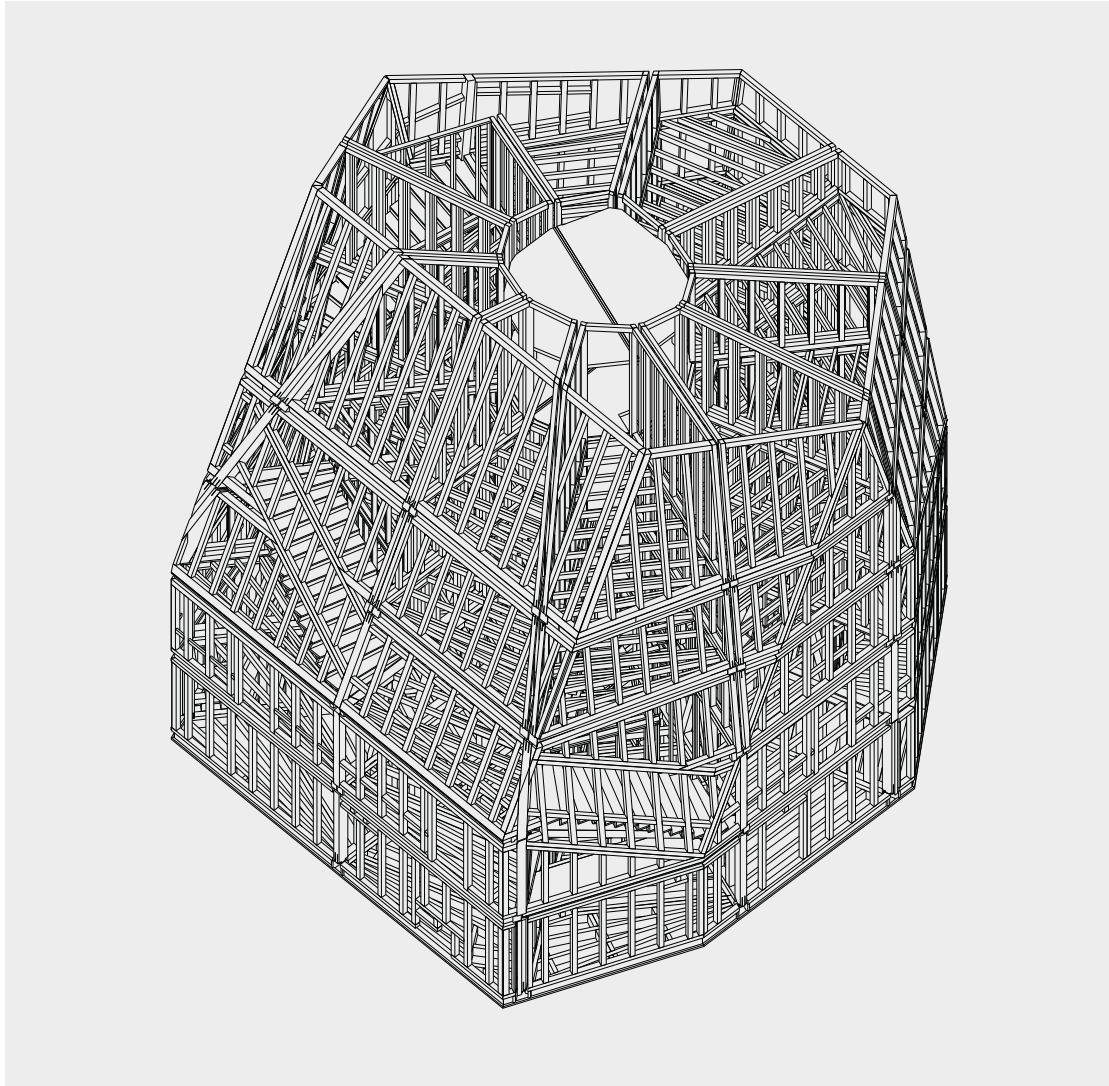
Louis Vandenberg: Longitudinal section through a point cloud of the Basilica of St Anthony in Padua, 2020
[Chair of Building Archeology and Construction History]

Making the Past Productive

D-ARCH is a leading research centre for the history and theory of architecture and preservation, the history of construction, and the archaeology of the built environment, as shown by its numerous international research projects and collaborations (SNSF, Horizon 2020, ERC Starting Grant) and its vast teaching programme (bachelor, master, master of advanced studies and doctoral programmes). Today, these historical and theoretical disciplines are already embedded in the department's research and teaching. However, the current societal and environmental challenges call for more – and more diverse – critical perspectives on the past, present and future of the built environment. To this end, D-ARCH will take steps to strengthen the impact of all these perspectives in the school's curriculum. In teaching, it will foster historical literacy and critical thinking through integrated studios, seminars and on-site workshops. In research, it will expand the faculty's competence in the areas of adaptive reuse, recycling and preservation, landscape and environmental studies, and postcolonial and feminist studies. At an infrastructural level, it will make its archives, databases and libraries fully accessible, ensure their safe and durable conservation, and promote the sharing of data and research findings.

Measures and Initiatives:

- Enhance historical literacy in design and construction throughout the curriculum
- Introduce theoretical and practical preservation in design education
- Further the impact of postcolonial and feminist studies, and the history of landscape and environment, in teaching and research
- Develop a platform for open-access publications and archival collections
- Intensify alliances with public and private partners
- Clarify and strengthen the alliance with the Werner Oechslin Library Foundation, Einsiedeln



Monte Rosa Hut, Zermatt, 2009 [Studio Monte Rosa with Bearth & Deplazes]

Empowering Design and Construction

D-ARCH is internationally recognised for its competence in architectural design and construction. This competence is based both on knowledge of the discipline's vast history and mastery of new design and technological solutions. All of this comes together in ETH Zurich's design studios, the school's collaborative showcase projects (Monte Rosa-Hütte, Manifesta Pavilion, Arch_Tec_Lab, Vacancy-House, Semiramis, etc.), and in the prolific professional and internationally recognised work of the ETH Zurich design faculty. However, current climate and social challenges also demand the fostering of specific knowledge of materials, structures and building processes within and through design. Accordingly, D-ARCH aims to boost its research on resource extraction and building materials; materials life cycles and cradle-to-cradle management strategies; new building methods in structural design and building services; alternative ways of building; and the history, technology and digitisation of the building process. As for teaching, D-ARCH will integrate construction throughout the curriculum. These measures all aim to guarantee the holistic design culture of the department at the highest level.

Measures and Initiatives:

- Further construction literacy in the school and improve its teaching and application in the design studios throughout the curriculum
- Foster knowledge transfer from architectural practice into teaching and research (D-ARCH's 'architects in practice' model)
- Strengthen and integrate construction literacy during the first two years of the bachelor's programme
- Strengthen collaboration with industrial partners and institutes within the ETH Domain (e.g. Empa, D-BAUG)
- Advance knowledge of how construction materials can counter resource scarcity, rising carbon emissions, material obsolescence and the short life cycles of current buildings



Exercise in free and perspectival drawing, 2022 [Chair of Art and Architecture]

IV. CULTURAL DEVELOPMENT

Governance and Diversity

D-ARCH is a diverse institution made up of many different individuals involved in a broad range of disciplines and methods in architecture for the benefit of the Swiss and international communities. To continue operating at the highest levels in the discipline and spearheading innovation in architectural research and teaching, D-ARCH must improve diversity, equity and inclusion within its community. Over the next years, the department will achieve this in several ways: by diversifying its faculty through targeted hires, revising its curriculum and strengthening its spatial identity. The school will build on existing grassroots and community initiatives within the department to develop concrete policy changes to support the diversification of students, staff and faculty. D-ARCH commits to being a safe environment by ensuring the mental and physical well-being of the whole departmental community. Reforming the governance of D-ARCH will contribute to this effort since it will improve hierarchical relations, processes, decision protocols and communication to foster more diversity, equity and inclusivity in the department.

Measures and Initiatives:

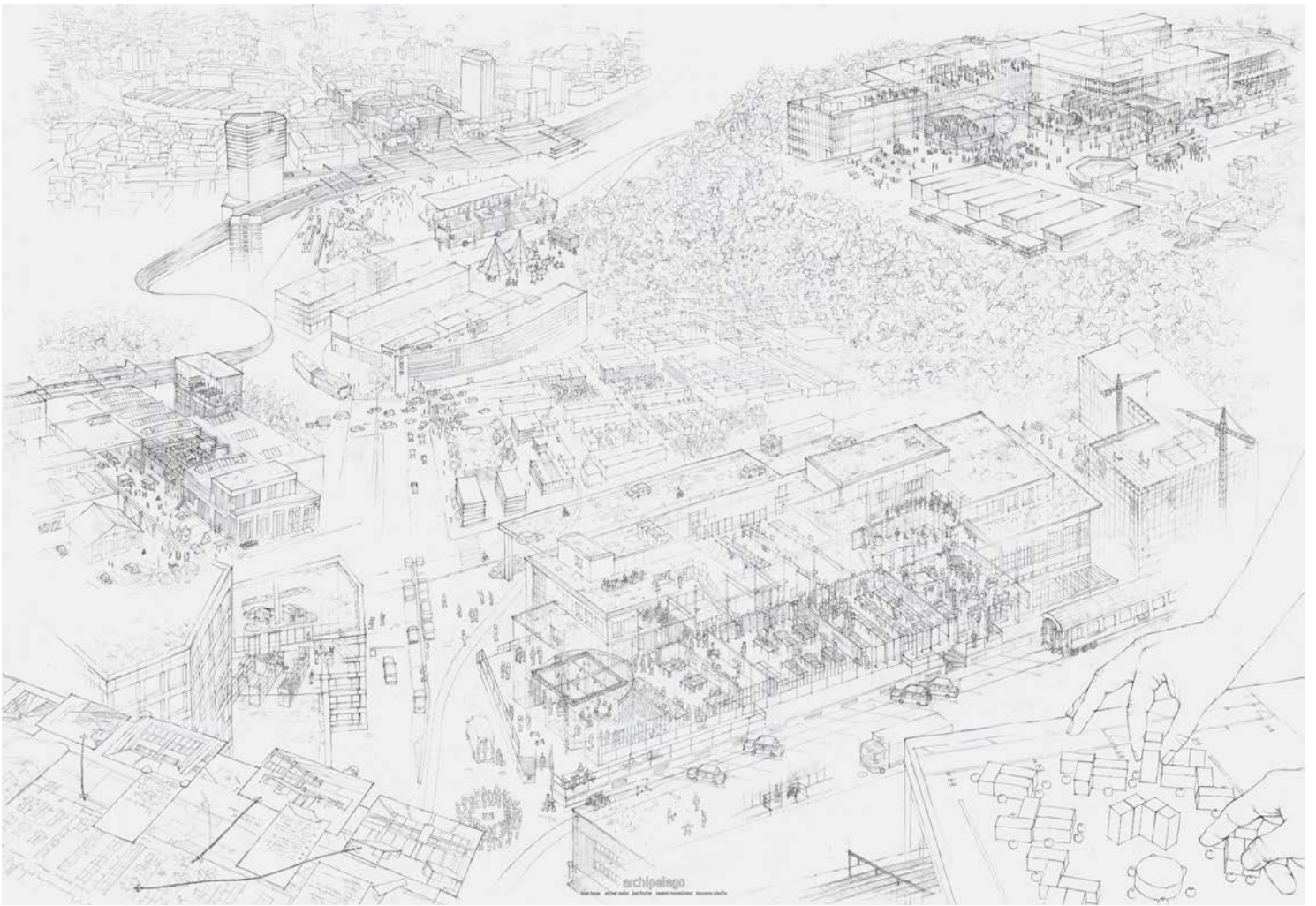
- Support joint appointments
- Support new teaching methods, models and spaces
- Incentivise more courses tackling issues of global and cultural identities
- Improve career paths for scientific staff (Mittelbau)
- Promote grassroots initiatives
- Improve the spatial quality, identity and unity of the department (i.e. campus Höggerberg and ONA building Zurich-Oerlikon, design studios, archives, etc.)
- Align strategic, educational, administrative and spatial needs with existing resources

Communication and Transparency

D-ARCH is built on mutual trust between its members and institutes, which in turn is based on common values, awareness and respect. Although the department has supported a series of initiatives to improve its internal functioning in the last year (Engage Report, Mental Health Report, Mittelbau Forum, etc.), internal and external communication has not always been up to the task. The department, therefore, pledges to improve its communication via a transparent (i.e. easily accessible) and clear (i.e. simple and visual) illustration of the department's structures, processes, protocols and activities.

Measures and Initiatives:

- Create an onboarding system for students, assistants and professors
- Create an accessible website that will be constantly updated
- Create a yearly event dedicated to improving communication within the department
- Publish the department's organisational structures and communication protocols
- Create several clearly identifiable points of contact within the department (e.g. a mental health support unit)
- Establish a system whereby grading criteria are communicated early in studios and exam reviewing becomes the norm



Timo Bauer, Michel Crelier, Joel Fischer, Hannah Kunzelmann, Francesco Pizzillo: Archipelago, 2021
[Informal Learning Spaces Studio, Innovedum Project]