DESIGN *TECHNOLOGY*

PLUS

PLUS

Innovating Design Practice Through Digital Technologies

PARK

JUNE 2025

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Design Computing

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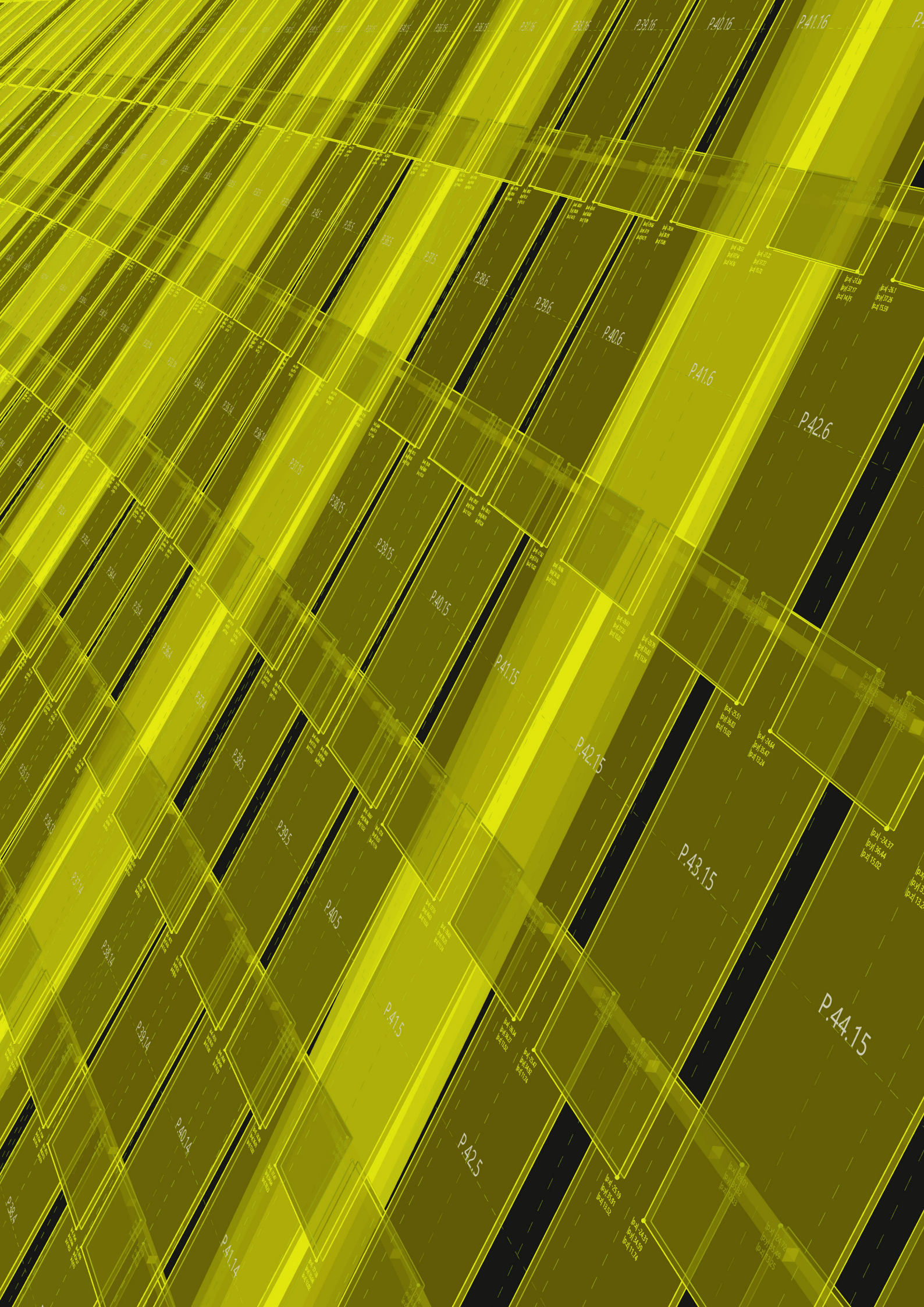
Design Technology

/dɪ’zaɪn tɛk’nɒlədʒi/

n. The set of innovative tools, methodologies and processes that employ emerging digital technologies for the purpose of conceiving, designing, building and managing a project in the construction industry.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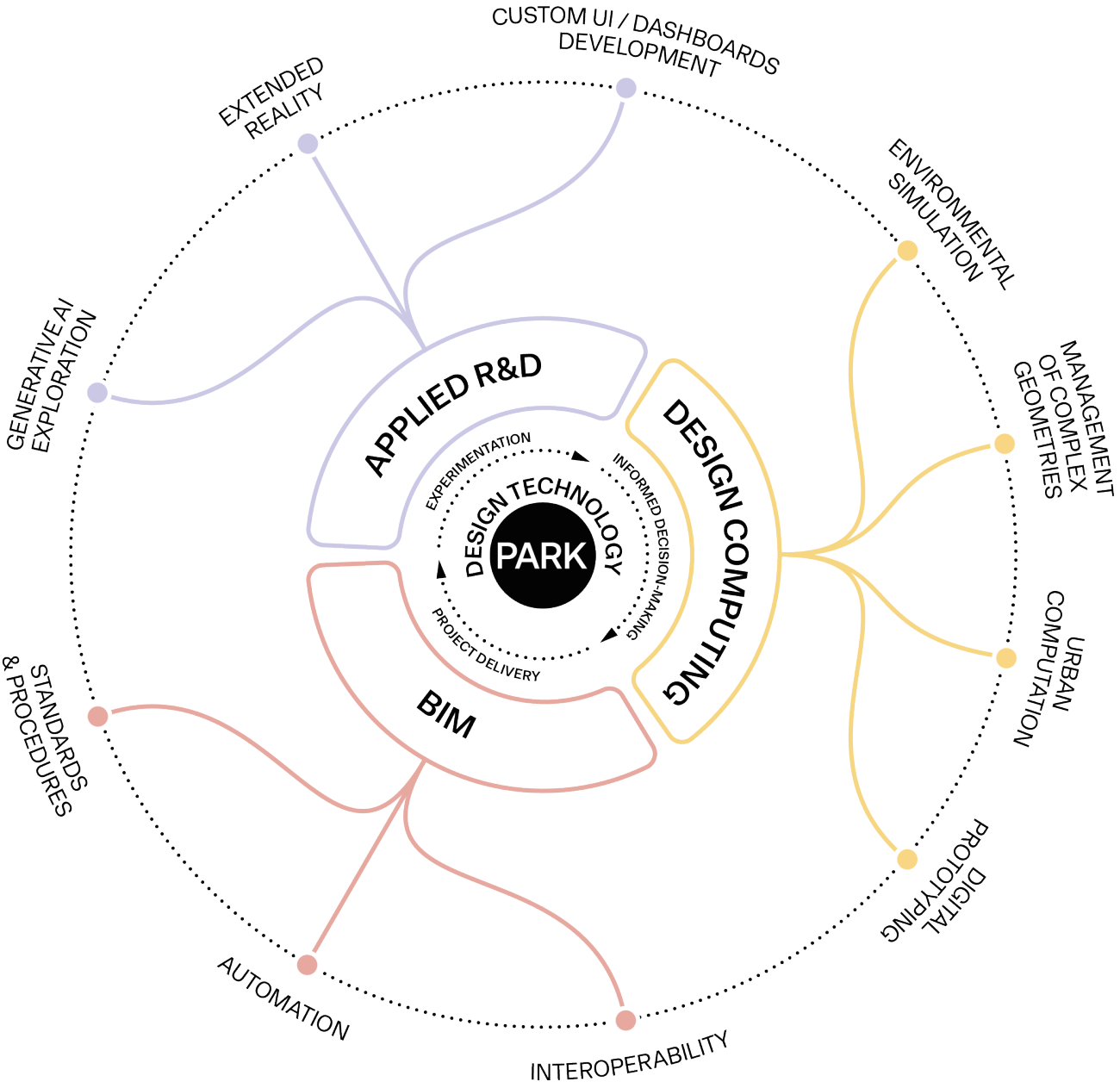
OUR APPROACH

In the AECO industry, the term ‘Design Technology’ refers to the research, development, and implementation of emerging digital technologies aimed at conceiving, designing, constructing, and managing a project.

The Design Technology group at Park is composed of a team of in-house BIM and Computational Design specialists that investigate and implement innovative digital design tools that support both decision-making in the early stages and project delivery.

Experimentation and collaboration are the two core principles driving the Design Technology team, whose main objective is to support project teams in achieving efficient, informed, and collaborative design outcomes.

Leveraging its expertise, the group collaborates other departments to develop tailored digital tools and to implement innovative methodologies that enhance the design process across all project phases, from urban planning to product design. In addition to its regular activities, it organises sessions to disseminate knowledge within the practice, fostering a culture of digital innovation across teams.


CUSTOM UI / DASHBOARDS DEVELOPMENT
EXTENDED REALITY
ENVIRONMENTAL SIMULATION
GENERATIVE AI EXPLORATION
MANAGEMENT OF COMPLEX GEOMETRIES
APPLIED R&D
DESIGN COMPUTING
EXPERIMENTATION
INFORMED DECISION-MAKING
DESIGN TECHNOLOGY
PARK
PROJECT DELIVERY
BIM
STANDARDS & PROCEDURES
URBAN COMPUTATION
DIGITAL PROTOTYPING
AUTOMATION
INTEROPERABILITY

DESIGN TECHNOLOGY TEAM

Alessandro Bentivegna
BIM Manager

Simone Caimi
BIM Coordinator

Giorgio Deleo
BIM Coordinator

Giulio Dini
Digital Design Manager

Amr Elhadari
BIM Coordinator

Daniele Ferrari
Architect

Daniella Siciliano
BIM Coordinator

Simone Tolosano
Architect

Our Design Technology team is composed of a diverse group of architects united by a strong interest in advanced digital technologies and innovation in the field of architecture. Each member brings unique skills and expertise, which are essential resources for tackling design challenges through complementary and innovative approaches.

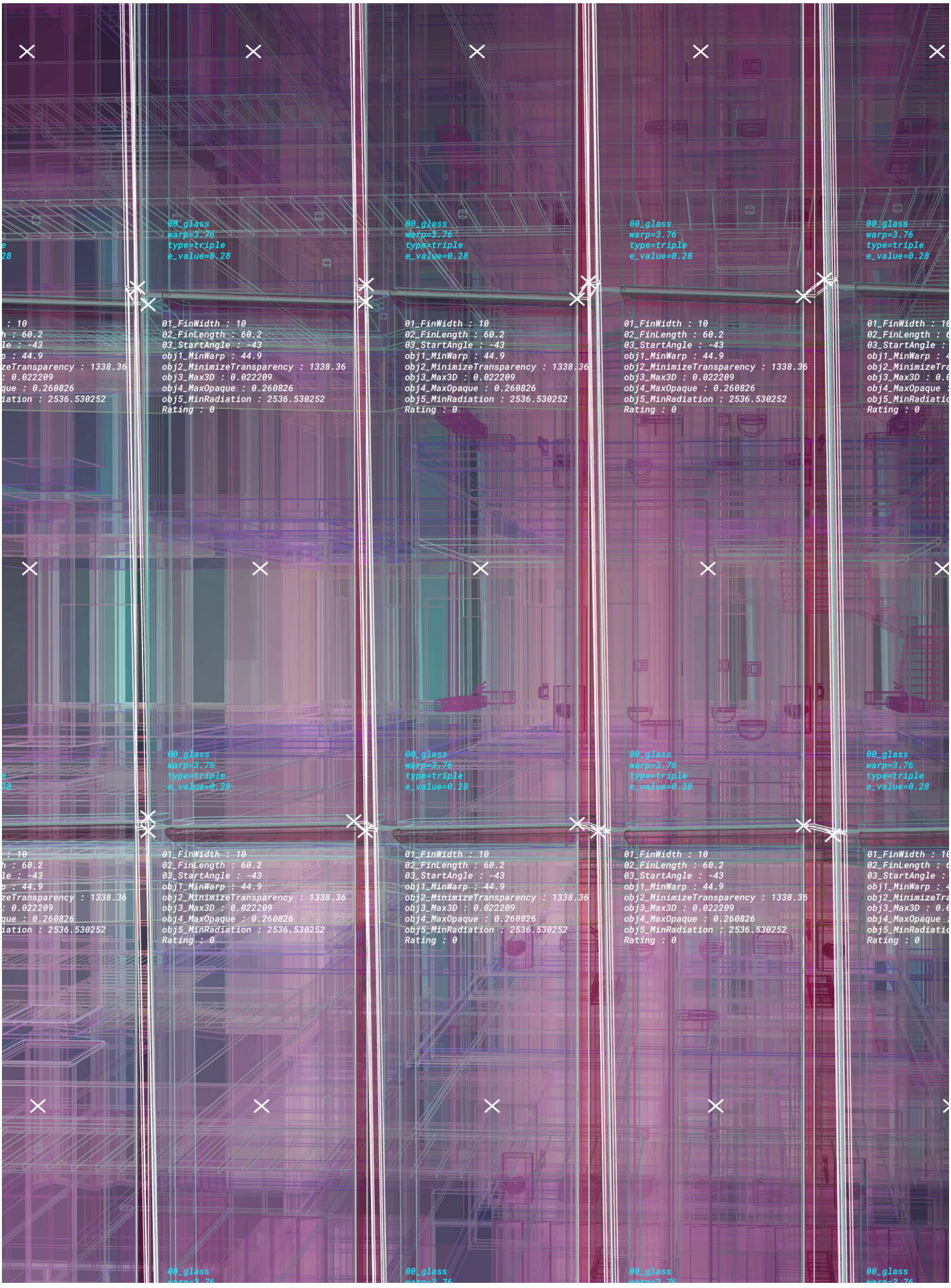
The team is structured around collaboration, aiming to avoid working in silos and instead fostering a fluid exchange of knowledge and ideas. This integrated approach allows for the convergence of different perspectives to generate original and innovative solutions, encouraging cross-pollination between areas of expertise and supporting design teams in making well-considered design choices, enriching both the creative and technical processes.

The group's implementation work is divided into three main areas: BIM (Building Information Modeling) activities, the development of Computational Design tools, and applied Research and Development.

BUILDING INFORMATION MODELING

From the early stages of the design process, Park approaches new projects by implementing the Building Information Modeling (BIM) methodology, based on the international openBIM standard, to enable seamless data sharing and collaboration across platforms and stakeholders.
This ensures efficient management and coordination of project data among all parties involved in the design process, facilitating communication and colalaboration. At the core of this approach is the information model, which plays a pivotal role throughout all design phases by housing all relevant project data. The Design Technology group provides daily support to project teams, ensuring adherence to quality standards and effective management of information models.

By using BIM to guide the design process, potential challenges are identified early, ensuring consistent output quality, smoother project delivery, and alignent with the client's expectations throughout its development.


00_glass
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02_FinLength : 60.2
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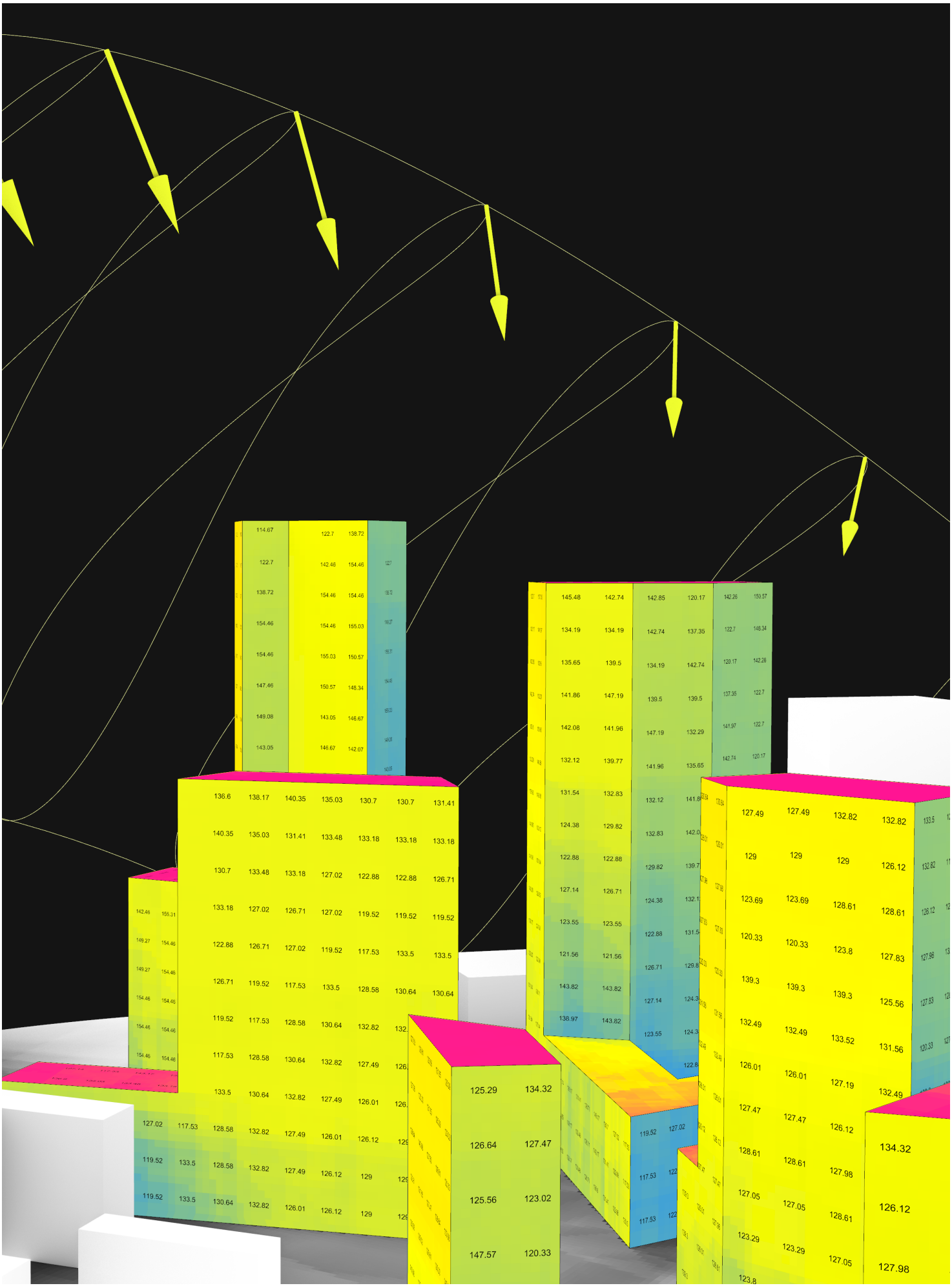
obj2_MinimizeTransparency : 1338.36
obj3_Max3D : 0.022209
obj4_MaxOpaque : 0.260826
obj5_MinRadiation : 2536.530252
Rating : 0

DESIGN COMPUTING

The use of Computational Design tools applied to project workflows blends with Park's ethos and design culture. The digital tools developed by the team are characterized by their innovative and technological capabilities, designed to facilitate collaborative and versatile use across design teams. Currently, these tools are being deployed for various use cases, including parametric modelling for design optioneering, workflow automation and software interoperability, as well as optimization of complex geometries and integrated environmental performance analysis.

Design Technology at Park also provides a supportive environment for exploring and experimenting with cutting-edge digital technologies, including innovative solutions in XR, UI design, and generative Artificial Intelligence.

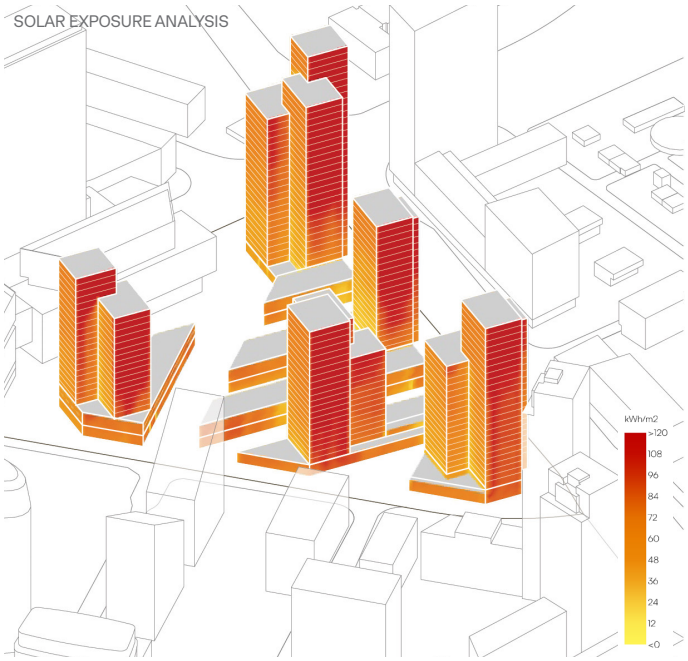


DATA-DRIVEN INSIGHTS

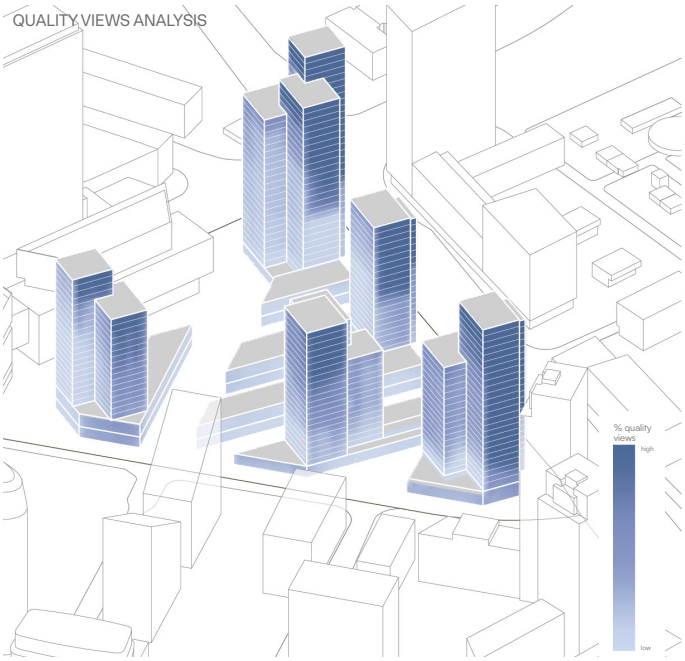
At Park, the Design Technology team develops tailored workflows that integrate digital simulations directly into the design process from its earliest stages. This approach allows project teams to assess key performance metrics, such as environmental and spatial performance, while the design evolves. The team also applies Generative Design, a computational methodology that exploit specialised algorithms to support the exploration of multiple design options and to address specific project challenges.

By merging human expertise with digital insights we generate and refine design solutions that meet project objectives. These workflows facilitate informed decision-making, amplify architectural intent, and steer projects toward optimized outcomes, ensuring alignment with the broader project vision.

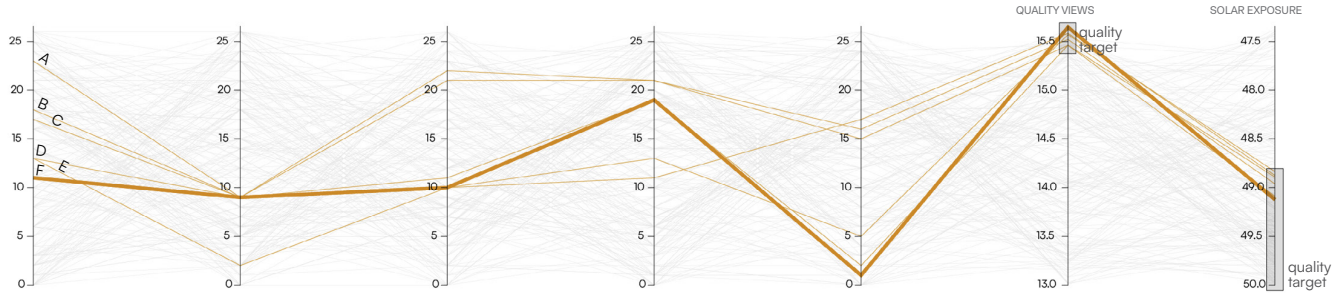
SOLAR EXPOSURE ANALYSIS



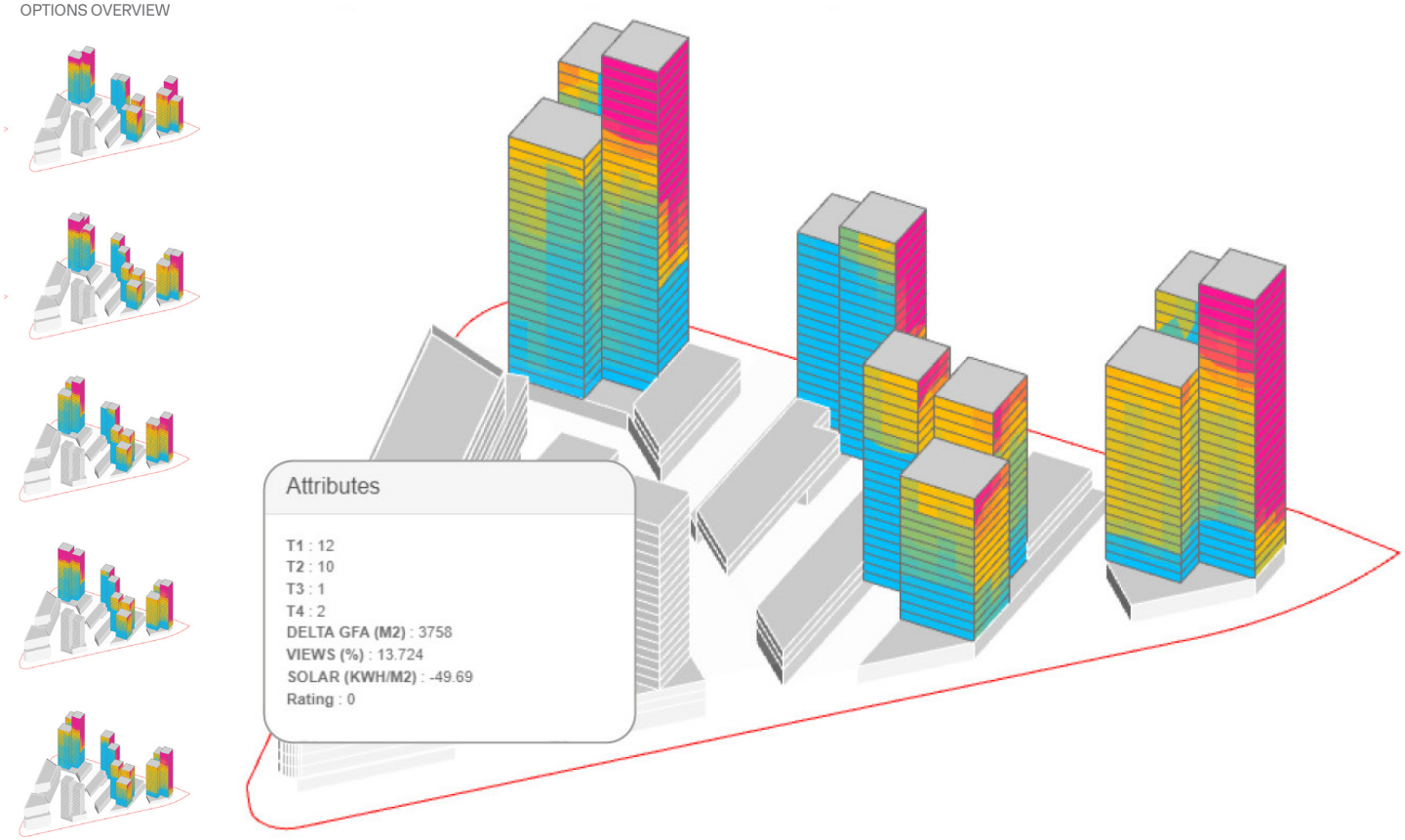
QUALITY VIEWS ANALYSIS



OPTIONS ASSESSMENT



OPTIONS OVERVIEW

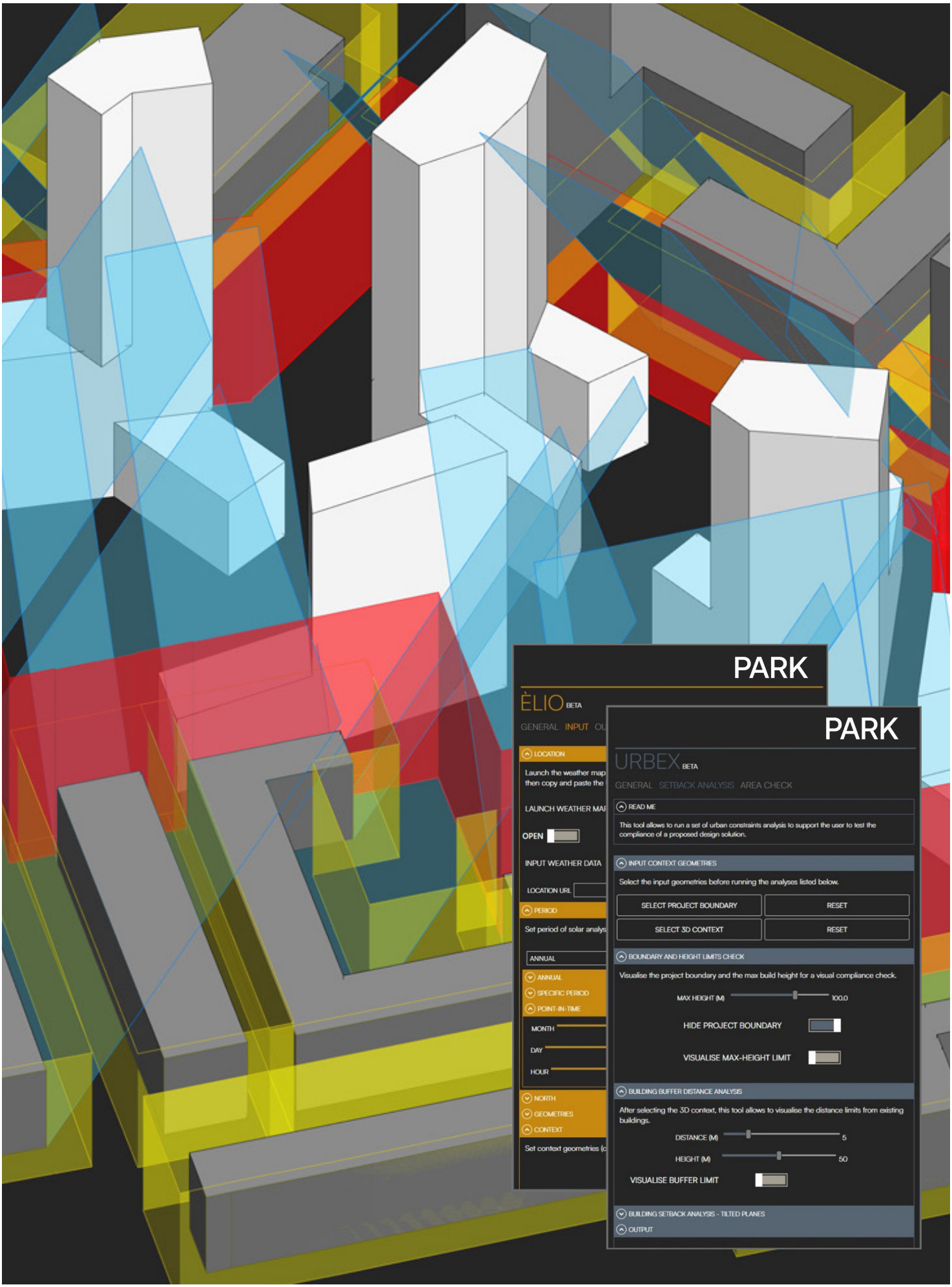


BESPOKE DIGITAL TOOLS

At Park, we develop bespoke digital tools to extend the capabilities of commercial 3D modeling and BIM authoring software. While these platforms provide a solid foundation, the evolving complexity of architectural projects calls for tailored solutions that support our design teams from conception through to delivery.

The tools developed by the Design Technology team streamline design exploration and enhance workflow efficiency, while also providing greater control over design parameters and constraints. This fosters a deeper accuracy and validation of design outputs, supporting more thoughtful decision-making.

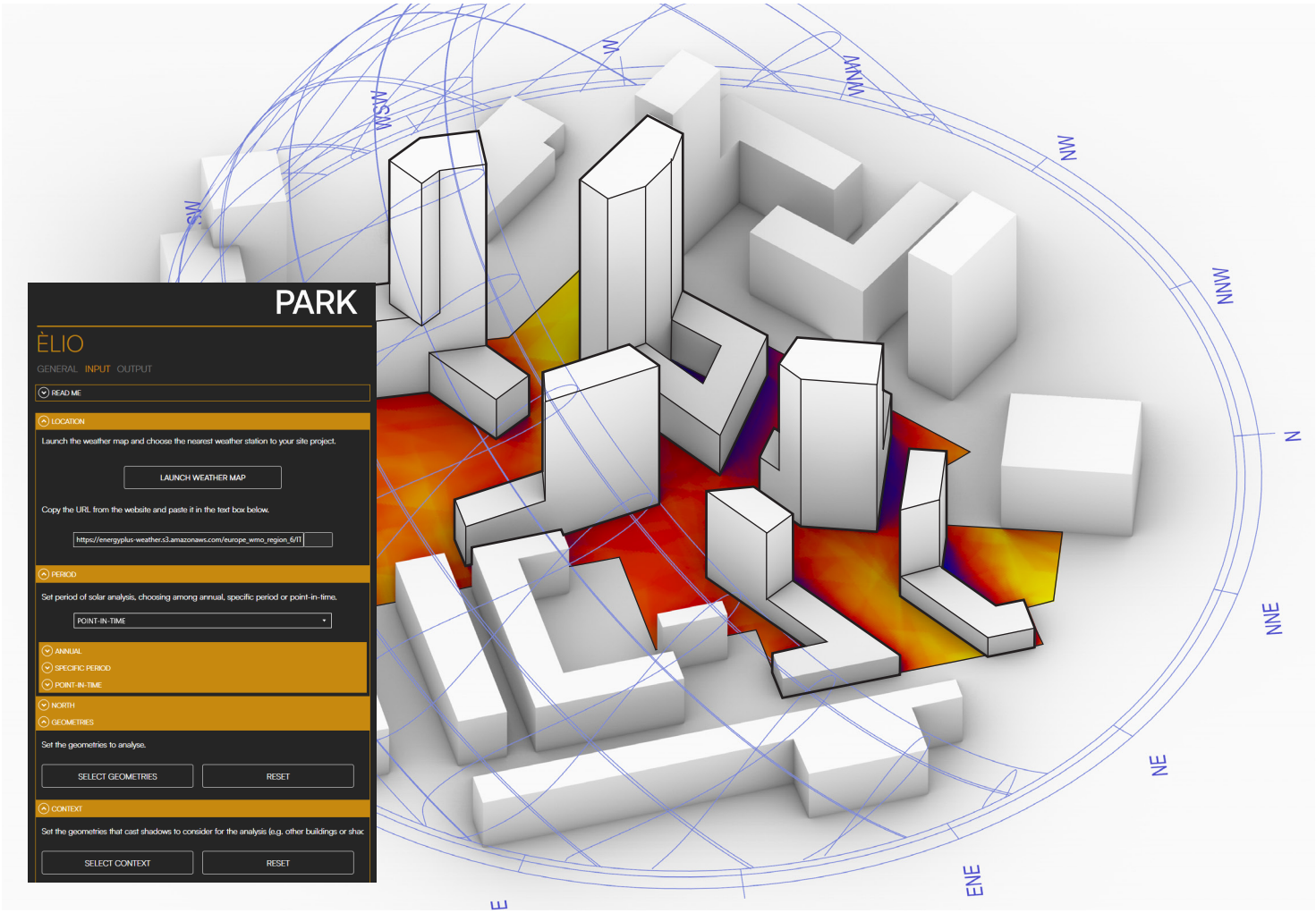
A key focus of this effort is making advanced computational methods accessible to non-specialists, empowering them to contribute directly through intuitive interfaces and task-specific features. In the following sections, we showcase some of our recent tools that embody this approach.


PARK
ÈLIO BETA
GENERAL INPUT OU
LOCATION
Launch the weather map
then copy and paste the
LAUNCH WEATHER MAP
OPEN
INPUT WEATHER DATA
LOCATION URL
PERIOD
Set period of solar analys
ANNUAL
ANNUAL
SPECIFIC PERIOD
POINT-IN-TIME
MONTH
DAY
HOUR
NORTH
GEOMETRIES
CONTEXT
Set context geometries (c
PARK
URBEX BETA
GENERAL SETBACK ANALYSIS AREA CHECK
READ ME
This tool allows to run a set of urban constraints analysis to support the user to test the compliance of a proposed design solution.
INPUT CONTEXT GEOMETRIES
Select the input geometries before running the analyses listed below.
SELECT PROJECT BOUNDARY
RESET
SELECT 3D CONTEXT
RESET
BOUNDARY AND HEIGHT LIMITS CHECK
Visualise the project boundary and the max build height for a visual compliance check.
MAX HEIGHT (M)
100.0
HIDE PROJECT BOUNDARY
VISUALISE MAX-HEIGHT LIMIT
BUILDING BUFFER DISTANCE ANALYSIS
After selecting the 3D context, this tool allows to visualise the distance limits from existing buildings.
DISTANCE (M)
5
HEIGHT (M)
50
VISUALISE BUFFER LIMIT
BUILDING SETBACK ANALYSIS - TILTED PLANES
OUTPUT

ÈLIO

ENVIRONMENTAL ANALYSIS

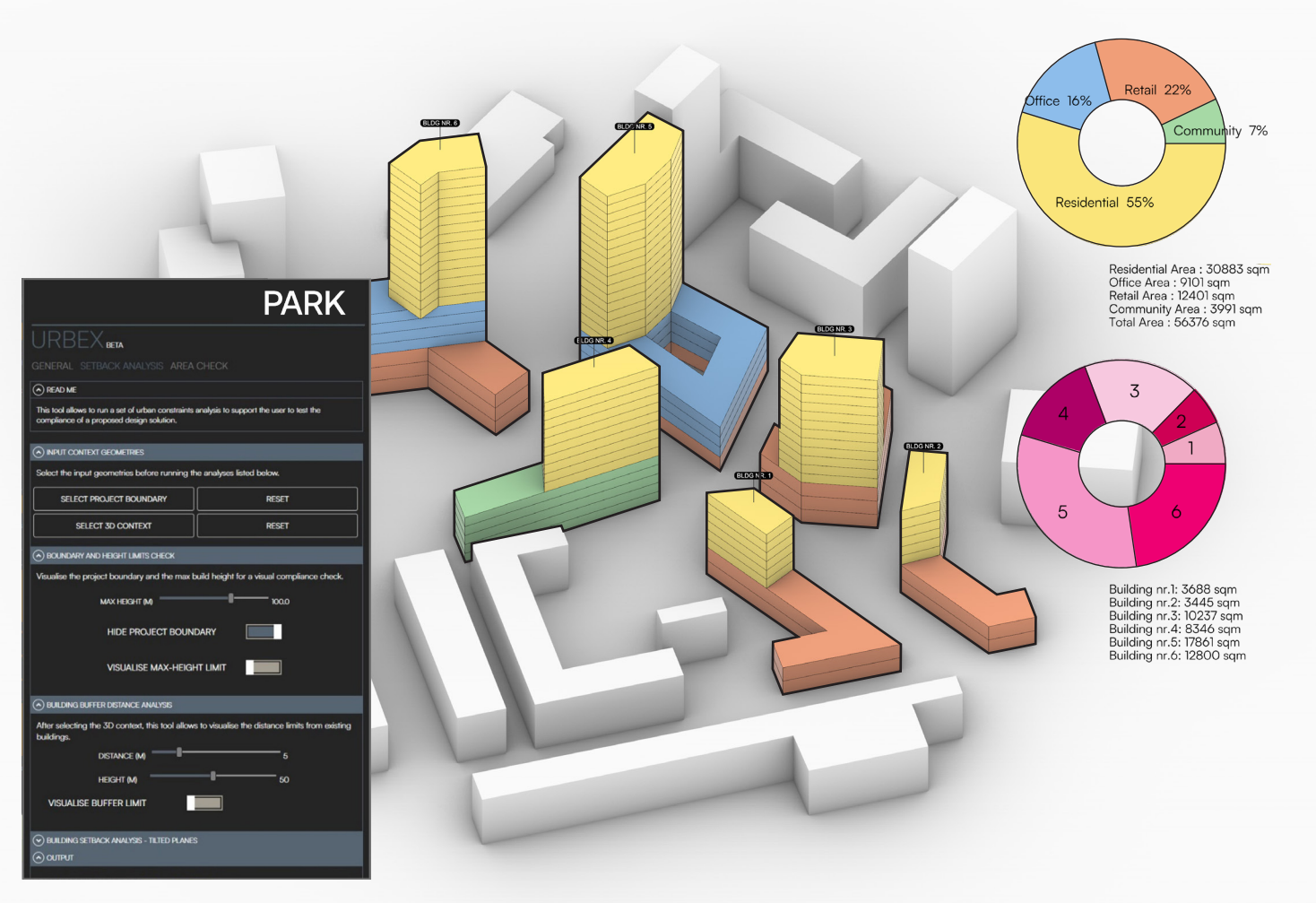
ÈLIO is a custom user interface that streamlines access to advanced environmental analysis capabilities typically found in computational design software, allowing non-specialists with limited computational literacy to evaluate their design's environmental performance in near real-time. This feedback empowers designers to grasp the environmental impact of their decisions, fostering a sustainability-focused mindset throughout the design process.



URBEX

URBAN COMPUTATION

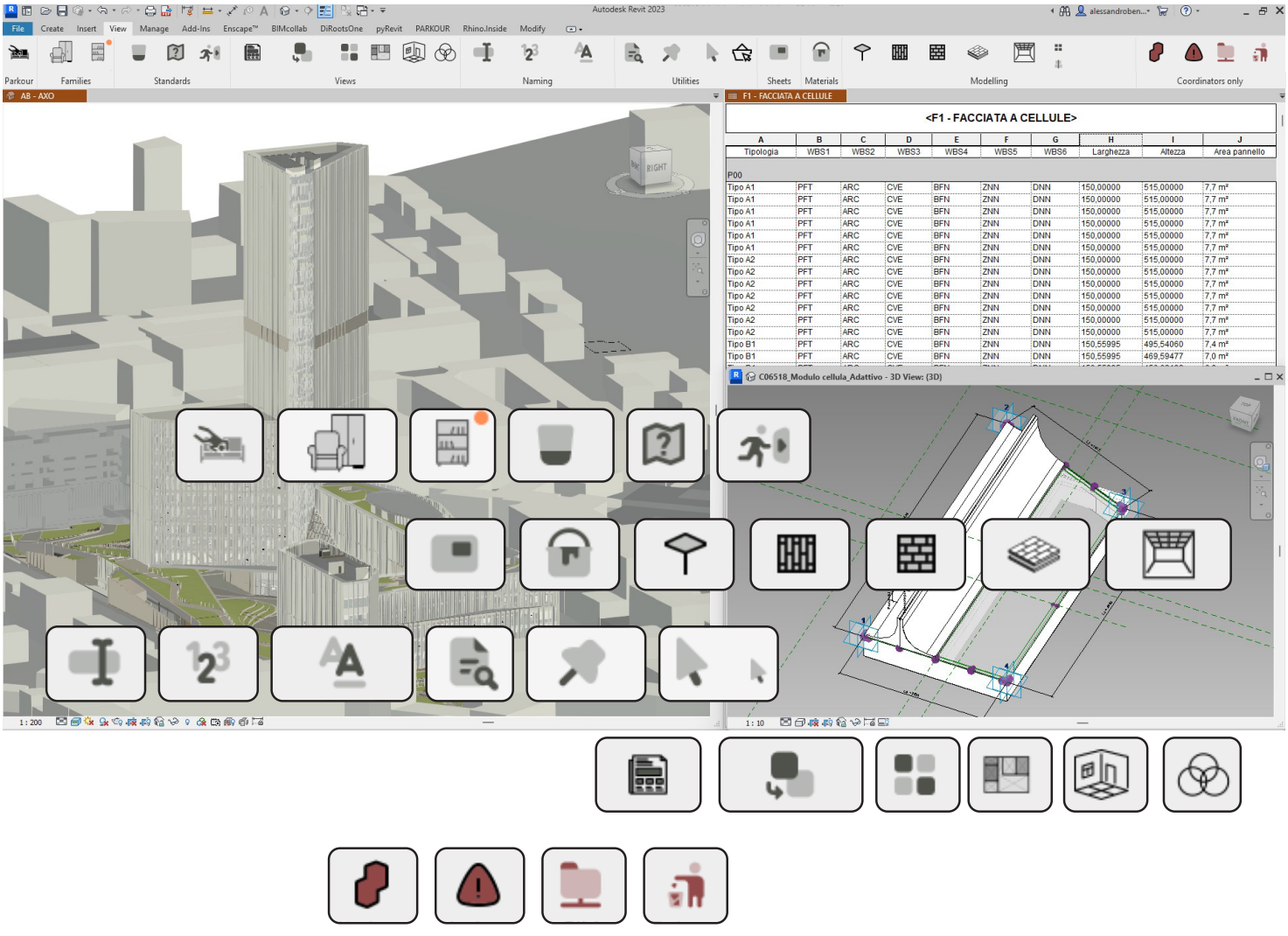
URBEX is a custom user interface designed for urban computation, enabling users to generate and evaluate massing scenarios based on contextual analyses in real-time. This allows designers to rapidly iterate and refine massing studies, maximizing the development potential of an urban area while ensuring key project-specific urban metrics are consistently addressed throughout the design process.



PARKOUR

CUSTOM REVIT TOOLBAR

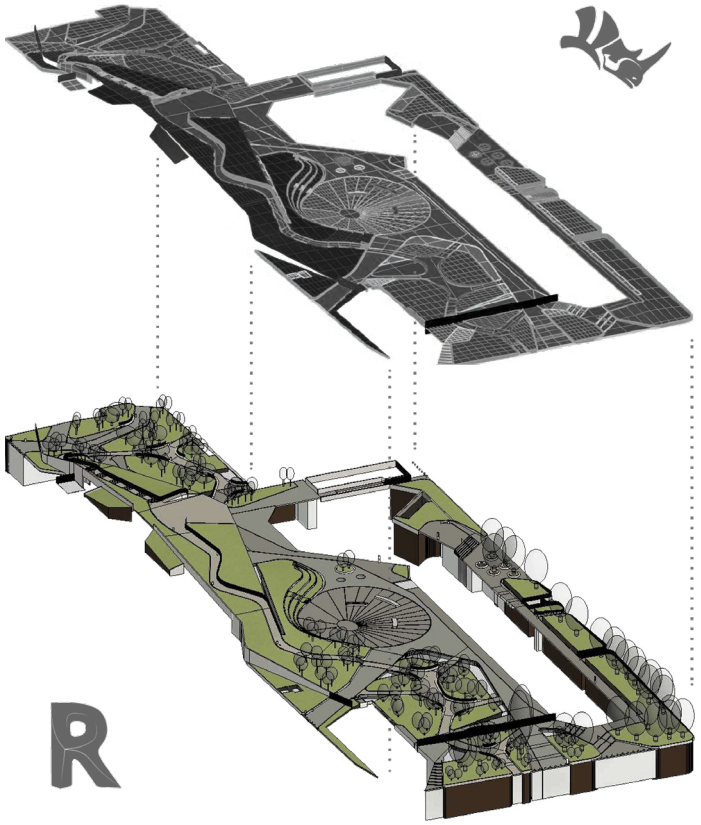
PARKOUR is our in-house plug-in for Autodesk Revit, developed to overcome certain specific software limitations and to respond to the needs identified through continuous feedback from studio users. The plug-in introduces new features that support team members in BIM modeling and documentation management, enabling designers to focus on the design process while ensuring consistent application of company standards.



NEXUS

CAD TO BIM INTEROPERABLITY

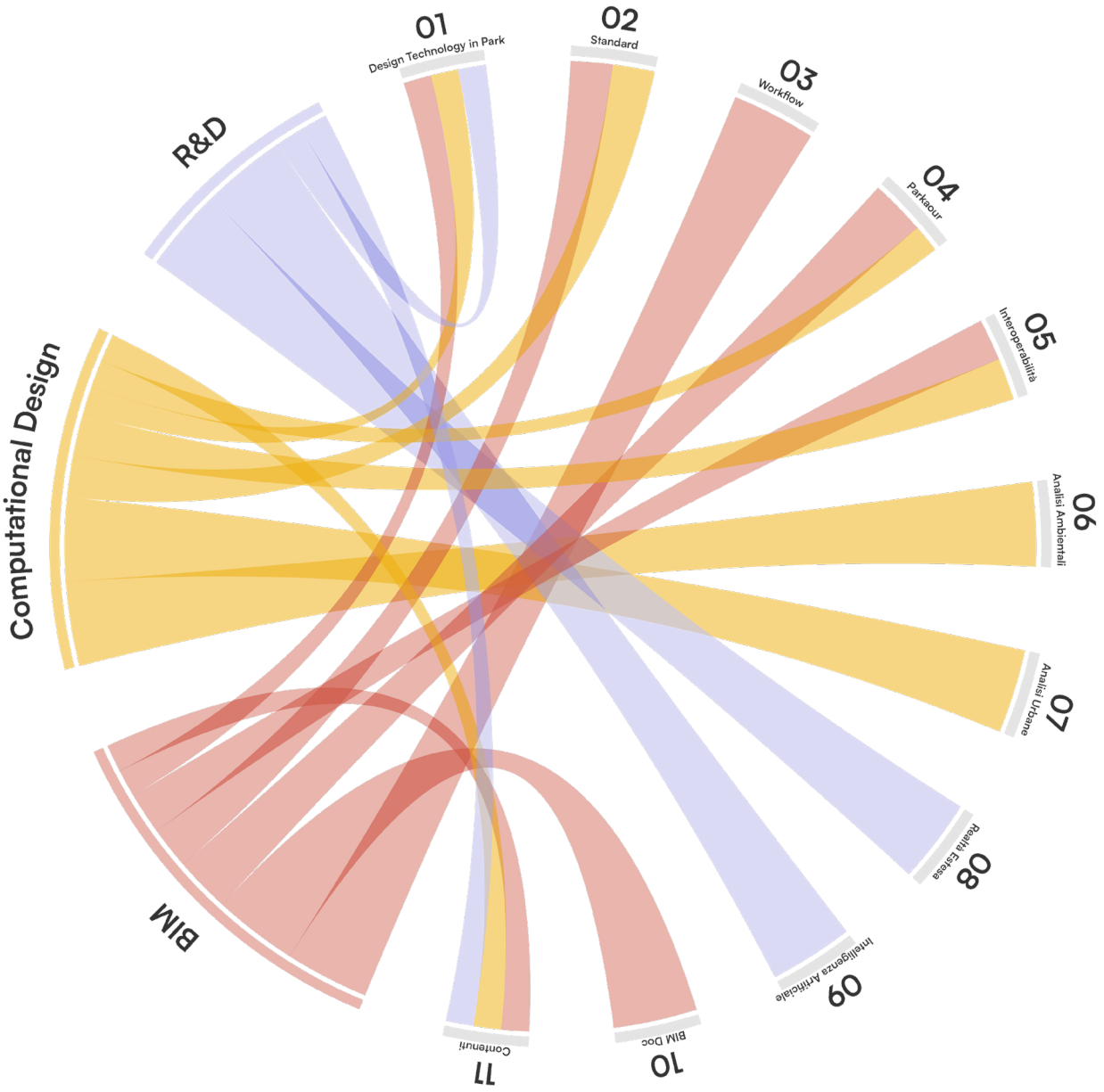
NEXUS is a custom user interface that simplifies access to established interoperability workflows for complex NURBS geometries, such as organic landscape features or façade elements. It enables users to convert such geometries into native objects within BIM authoring software,without needing to understand the technical specifics, allowing designers to seamlessly focus on both design and documentation in their respective software environments.



DESIGN TECHNOLOGY HANDBOOK

The Design Technology Handbook has been developed to document and consolidate our operational standards, while making the innovations introduced by the department more accessible and easy to implement for all team members.

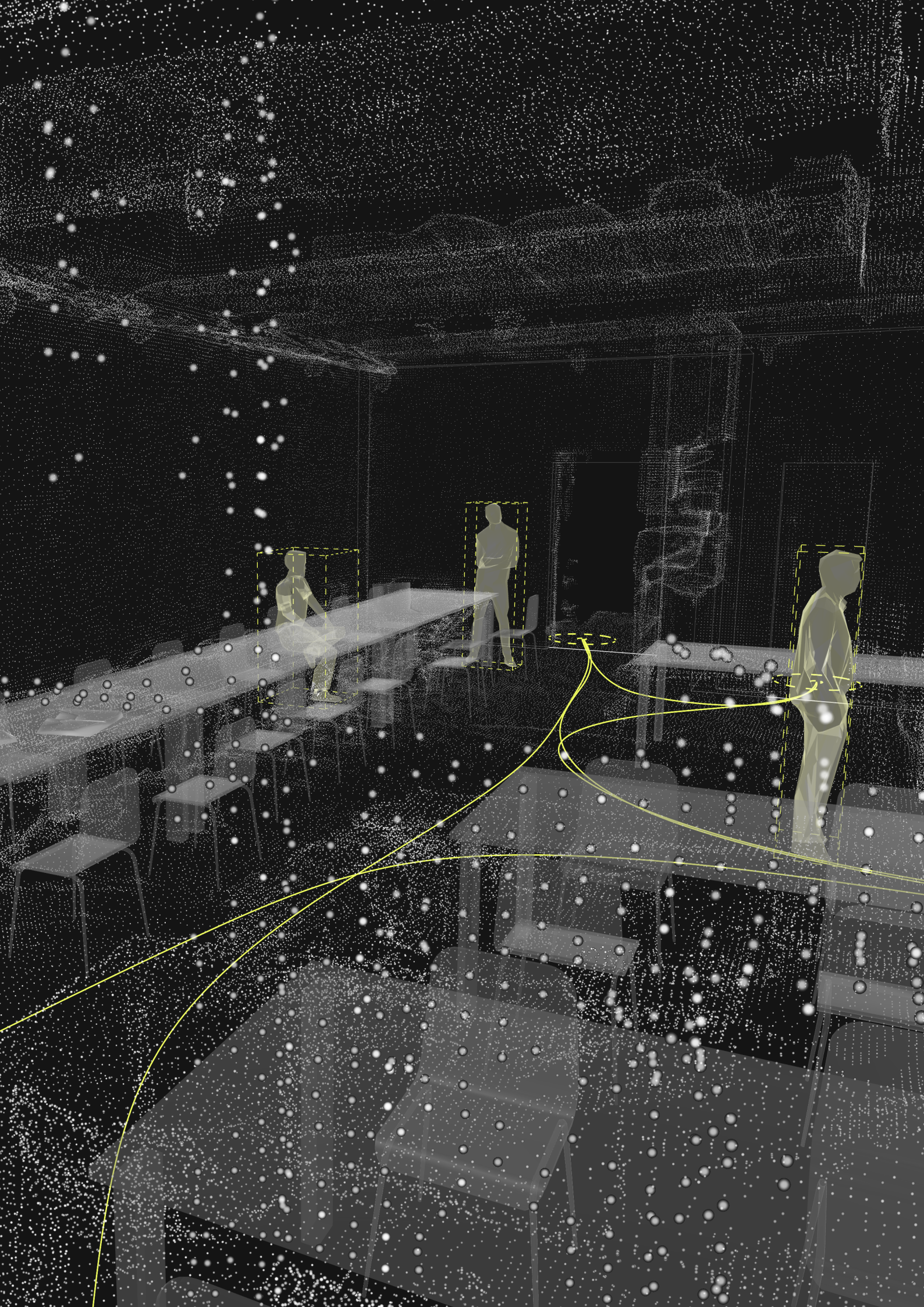
Designed as a cross-disciplinary resource, the Handbook is intended for both specialists and non-expert users. It serves as a gateway to the studio's collective knowledge in Design Technology. The document includes numerous references to internal and online content, providing users with an easy way to navigate the resources and explore different topics in greater depth on their own.



EXTENDED REALITY

The integration of Extended Reality into project workflows is a key area of implementation within the Design Technology team, in collaboration with the Visualisation department. This includes consolidated processes for Virtual Reality (VR) and project-specific applications of Augmented Reality (AR). VR plays an active role throughout the design process—not only for communication, but as a tool to support and improve decision-making.

This enables a clearer understanding of scale, proportion, materiality, and spatial relationships from the earliest stages, allowing teams to refine ideas with greater confidence and efficiency. A dedicated VR space within our studio supports this process, offering an immersive setting where users can interact with designs and engage in more informed discussions. Alongside this, AR is being explored through targeted, project-specific case studies.



‘Style is accustomed to aging, but method endures.

We prioritize method as the foundation for innovation, drawing from the past to create transformative and enduring environments that meet tomorrow's challenges.’

Founded in 2000 by Filippo Pagliani and Michele Rossi, Park deals with architecture, urban design, interior and product design.

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