



QUANT CITY

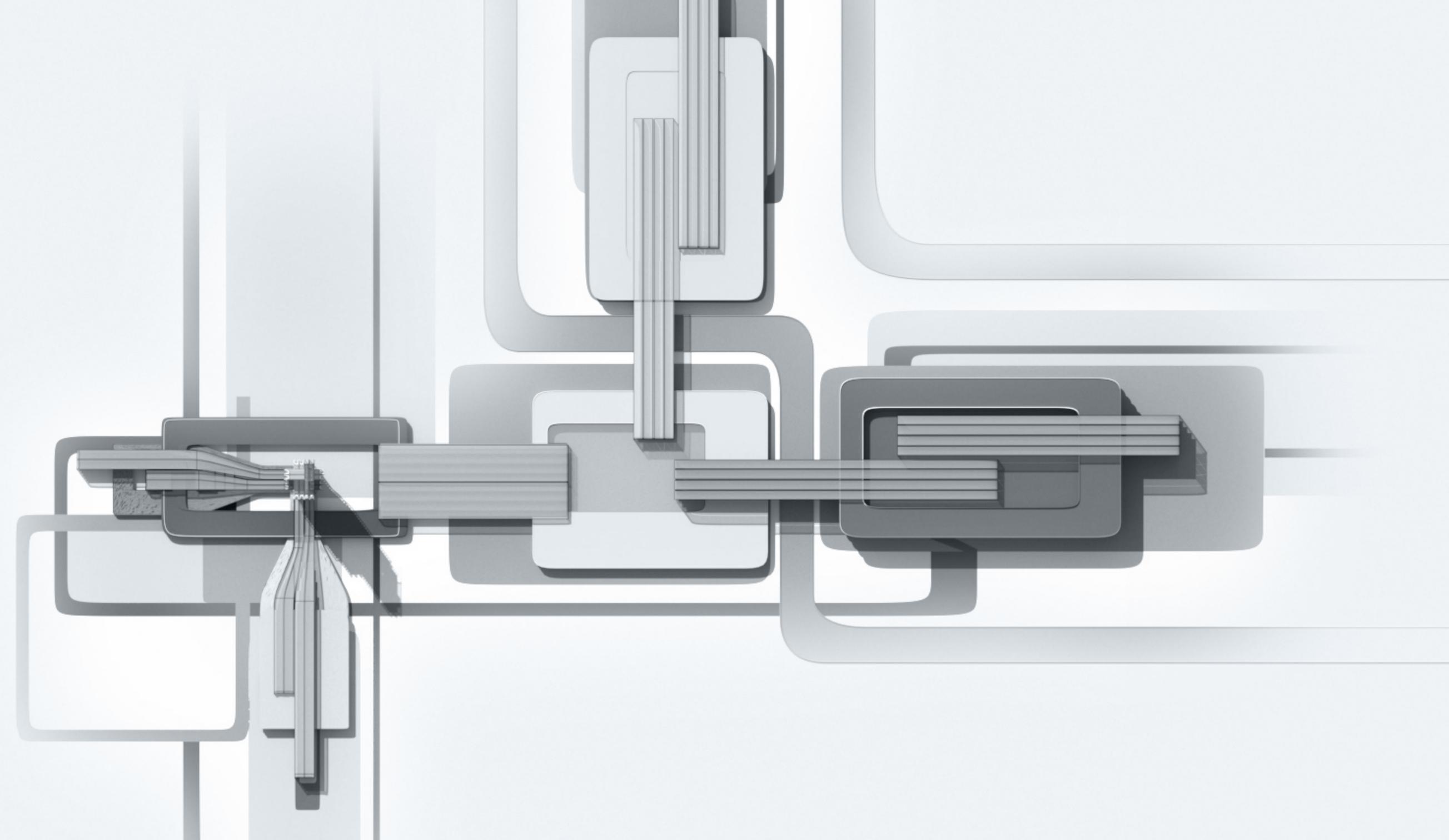


## *QUANT City - Home of the nanoFlowcell*

nanoFlowcell Holdings Ltd (NFC) is the internationally leading research and development company for modern flow cell technology and its applications. Outstanding features of this innovative flow cell energy technology are its uncompromising health and environmental compatibility, inherent safety as well as high energy density and scalable power.

„nanoFlowcell® - the new energy“, is NFC's claim for challenging a change in perspective in energy production, transportation and usability - be it for mobile or stationary applications. The company's new innovation center QUANT City is its manifestation.

QUANT City is the embodiment of NFC's holistic approach to research and development, combining global resources, and creating meaningful innovation that help advance society and preserve the environment.



*QUANT City -  
nucleus of a sustainable energy future*

NFC is developing advanced flow cell energy systems, providing energy for mobile and stationary applications; object of innovation is the material structure and composition of the nanoFlowcell® flow cell membrane as well as the chemical composition of the complementary electrolyte liquid registered as bi-ION®.

NFC's overall aim with nanoFlowcell® and its complementary electrolyte bi-ION® is to improve energy efficiency and sustainable energy use, which both will contribute to a better global environment and benefit society around the globe.

In a step to advance flow cell technology and its applications, NFC is building QUANT City, innovation center and international hub for flow cell research and applications development; QUANT City serves as blueprint facility for nanoFlowcell® and bi-ION® production & applications development centers around the world.

## *Welcome to the Future of Energy*

QUANT City is a first of its kind innovation center, representing a new approach to integrated research and development. QUANT City is stipulating collaboration over competition in international research, science and engineering for flow cell technology and applications engineering.

NFC utilizes QUANT City to catalyze innovation and create flexible models of collaboration with academics, industry and innovation partners to advance flow cell energy research and generate applicable know-how.

With QUANT City, NFC is piloting extensive service functions necessary to run the production facility for nanoFlowcell® and bi-ION® - from complete supply and disposal management, to logistics services, as well as engineering and facility management.

These operational experience will help NFC in developing and implementing a blueprint for further production facilities (plug & play facilities) in other regions of the world.

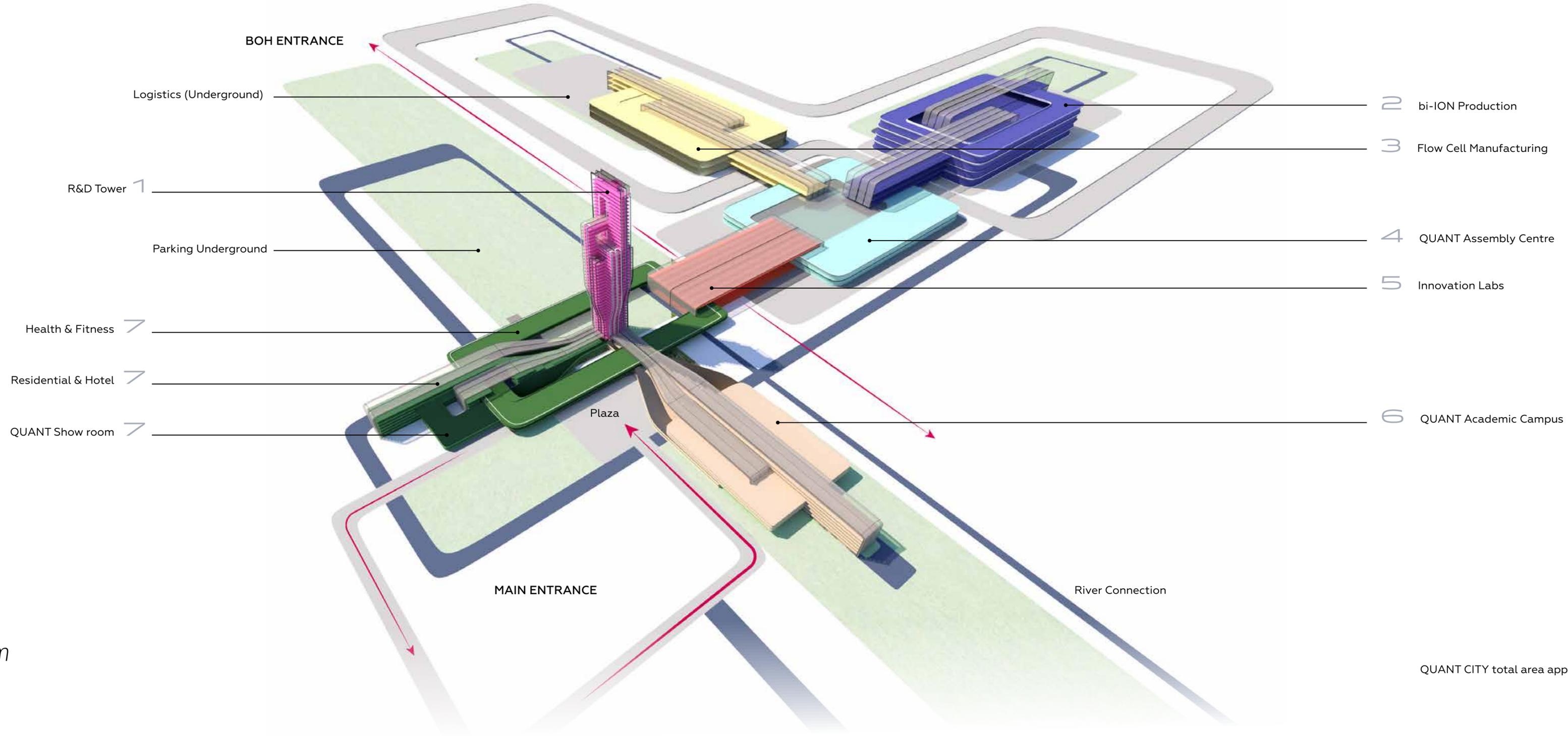




Design planning by Zaha Hadid Architects

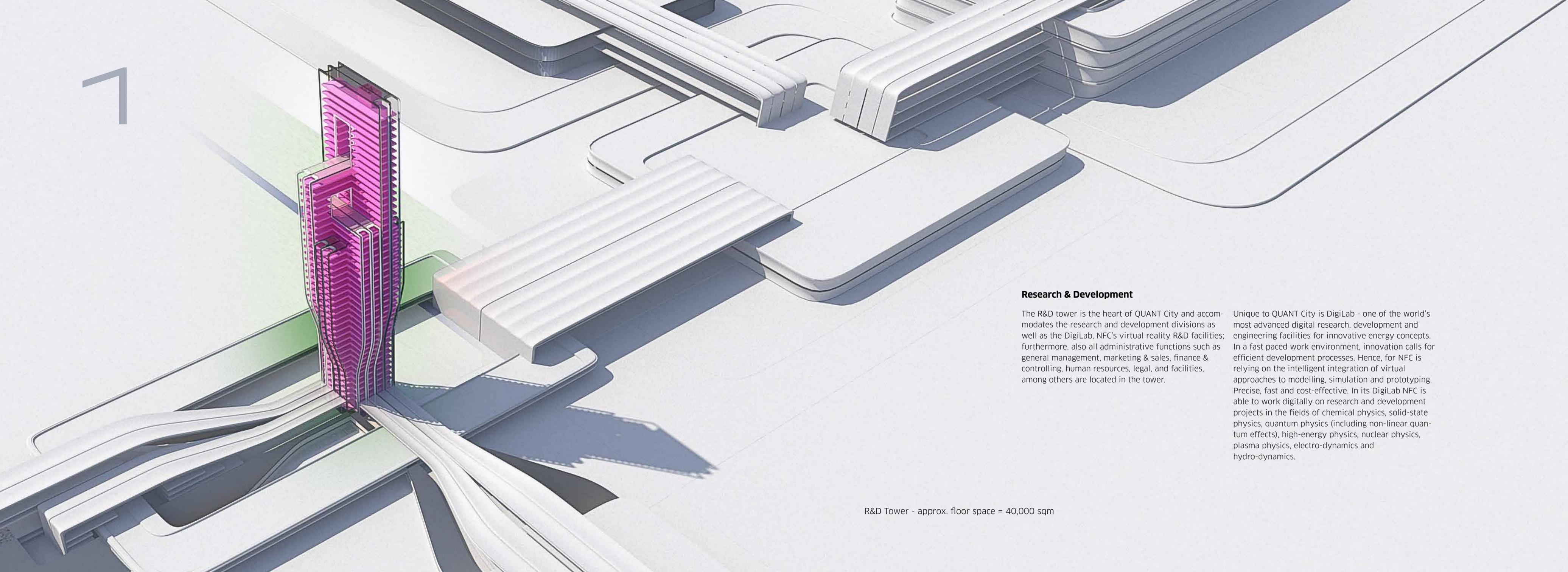
*"nanoFlowcell® offers clean and safe energy - wherever, whenever. As a research and development company, we are well aware of our responsibility - as a pioneer and shaper of future thinking in sustainable mobility and as mentor for energy that is structured environmentally compatible and socially fair."*

Nunzio La Vecchia,  
CEO nanoFlowcell Holdings



Programme Diagram

QUANT CITY total area approx. 500,000 sqm



### Research & Development

The R&D tower is the heart of QUANT City and accommodates the research and development divisions as well as the DigiLab, NFC's virtual reality R&D facilities; furthermore, also all administrative functions such as general management, marketing & sales, finance & controlling, human resources, legal, and facilities, among others are located in the tower.

Unique to QUANT City is DigiLab - one of the world's most advanced digital research, development and engineering facilities for innovative energy concepts. In a fast paced work environment, innovation calls for efficient development processes. Hence, for NFC is relying on the intelligent integration of virtual approaches to modelling, simulation and prototyping. Precise, fast and cost-effective. In its DigiLab NFC is able to work digitally on research and development projects in the fields of chemical physics, solid-state physics, quantum physics (including non-linear quantum effects), high-energy physics, nuclear physics, plasma physics, electro-dynamics and hydro-dynamics.

R&D Tower - approx. floor space = 40,000 sqm



*The consistent use of digital technologies enables us to carry out research and development work faster, more accurate and more efficient.*

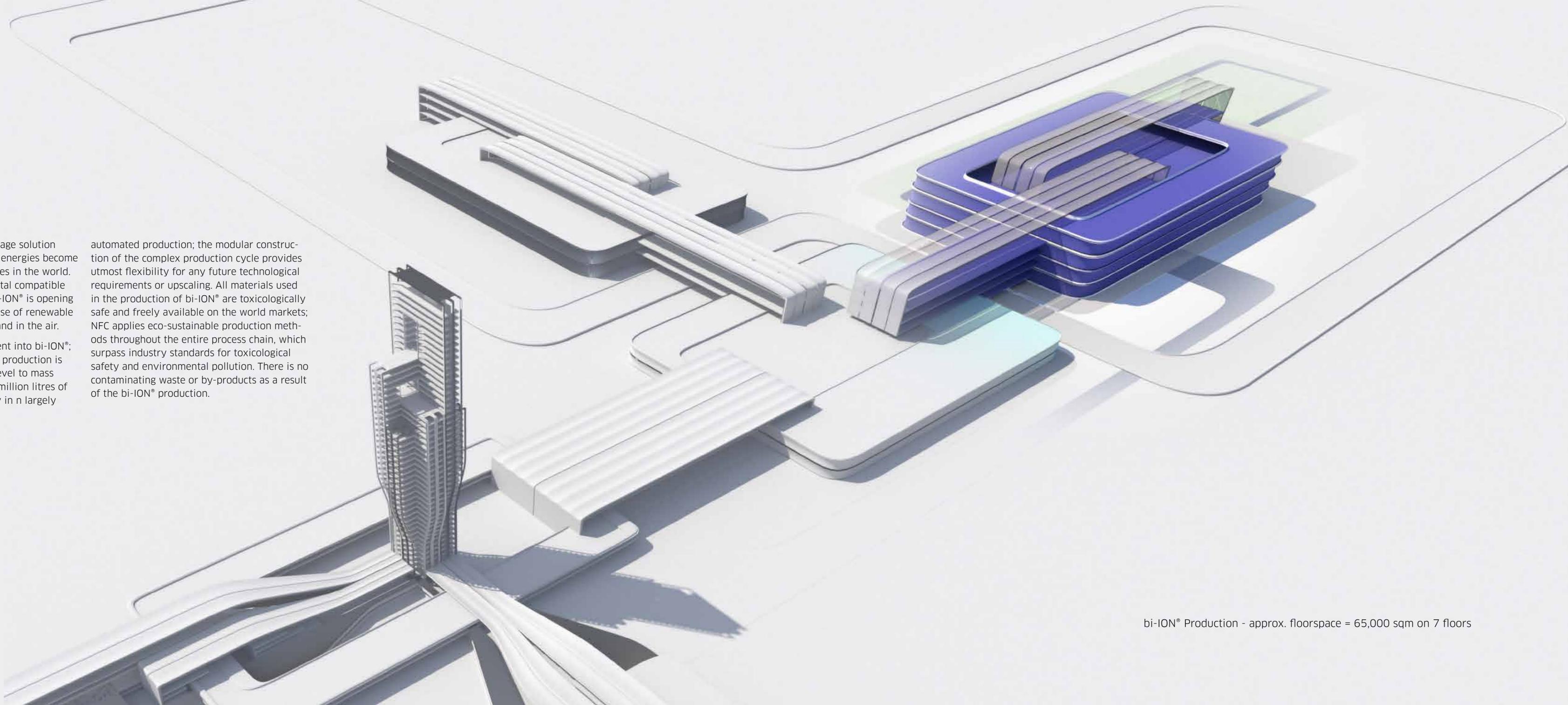
# 2

## bi-ION® Production

bi-ION® is a liquid energy storage solution which is making regenerative energies become mobile - to and from any places in the world. An energy that is environmental compatible and non-harmful to health. bi-ION® is opening up new perspectives for the use of renewable energies - on land, on water and in the air.

Over ten years of research went into bi-ION®; in QUANT city, the electrolyte production is transferred from laboratory level to mass production. Approximately 3 million litres of bi-ION® can be produced daily in a largely

automated production; the modular construction of the complex production cycle provides utmost flexibility for any future technological requirements or upscaling. All materials used in the production of bi-ION® are toxicologically safe and freely available on the world markets; NFC applies eco-sustainable production methods throughout the entire process chain, which surpass industry standards for toxicological safety and environmental pollution. There is no contaminating waste or by-products as a result of the bi-ION® production.



bi-ION® Production - approx. floorspace = 65,000 sqm on 7 floors



# 3

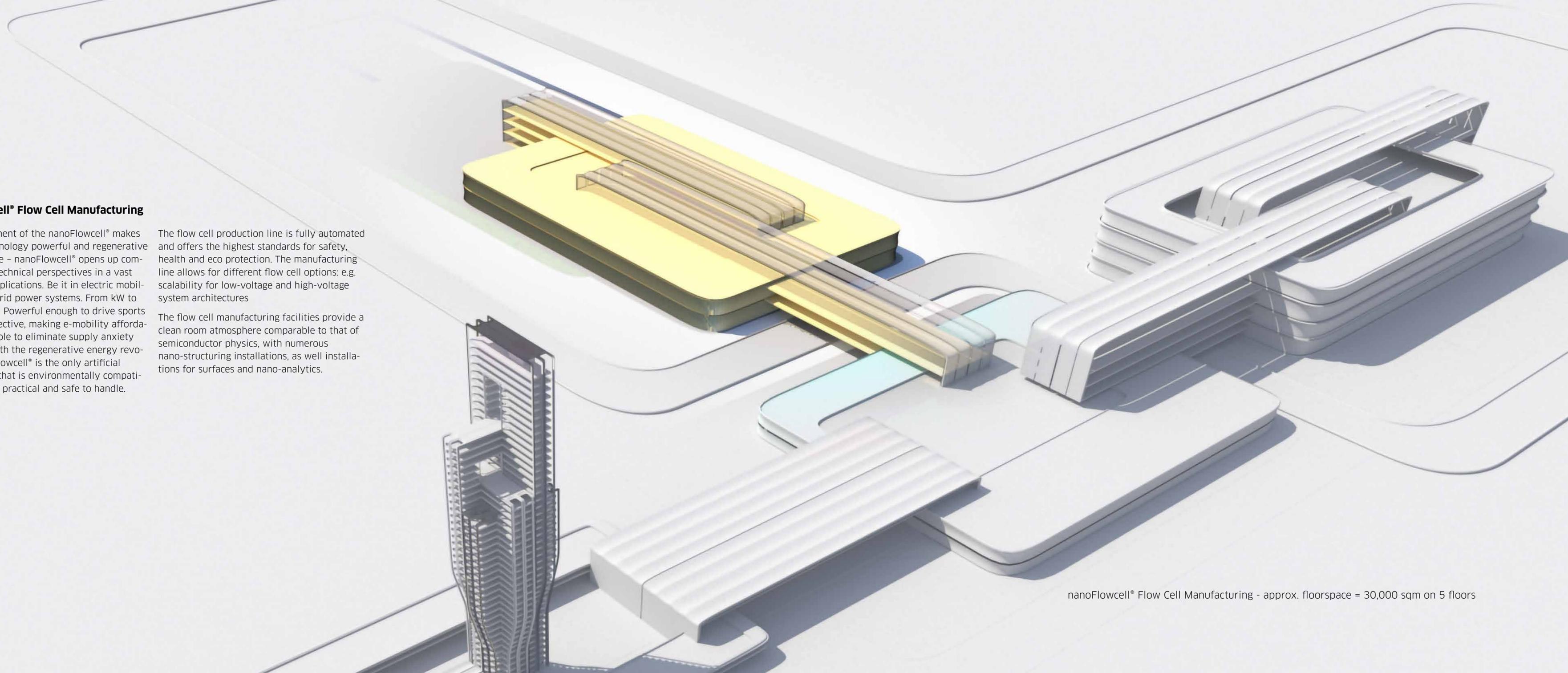
## **nanoFlowcell® Flow Cell Manufacturing**

The development of the nanoFlowcell® makes flow cell technology powerful and regenerative energy mobile – nanoFlowcell® opens up completely new technical perspectives in a vast number of applications. Be it in electric mobility or in off-grid power systems. From kW to MWh to GWh. Powerful enough to drive sports cars. Cost-effective, making e-mobility affordable and scalable to eliminate supply anxiety associated with the regenerative energy revolution. nanoFlowcell® is the only artificial energy form that is environmentally compatible as well as practical and safe to handle.

The flow cell production line is fully automated and offers the highest standards for safety, health and eco protection. The manufacturing line allows for different flow cell options: e.g. scalability for low-voltage and high-voltage system architectures

The flow cell manufacturing facilities provide a clean room atmosphere comparable to that of semiconductor physics, with numerous nano-structuring installations, as well installations for surfaces and nano-analytics.

nanoFlowcell® Flow Cell Manufacturing - approx. floorspace = 30,000 sqm on 5 floors



*Our research and development team has shown courage by forging new ways in the research of flow cell technology that leading scientists dismissed just a few years ago as dead ends. We have proven ourselves in the face of all doubters and developed a technology that will change the world. nanoFlowcell® is the power of the future.*



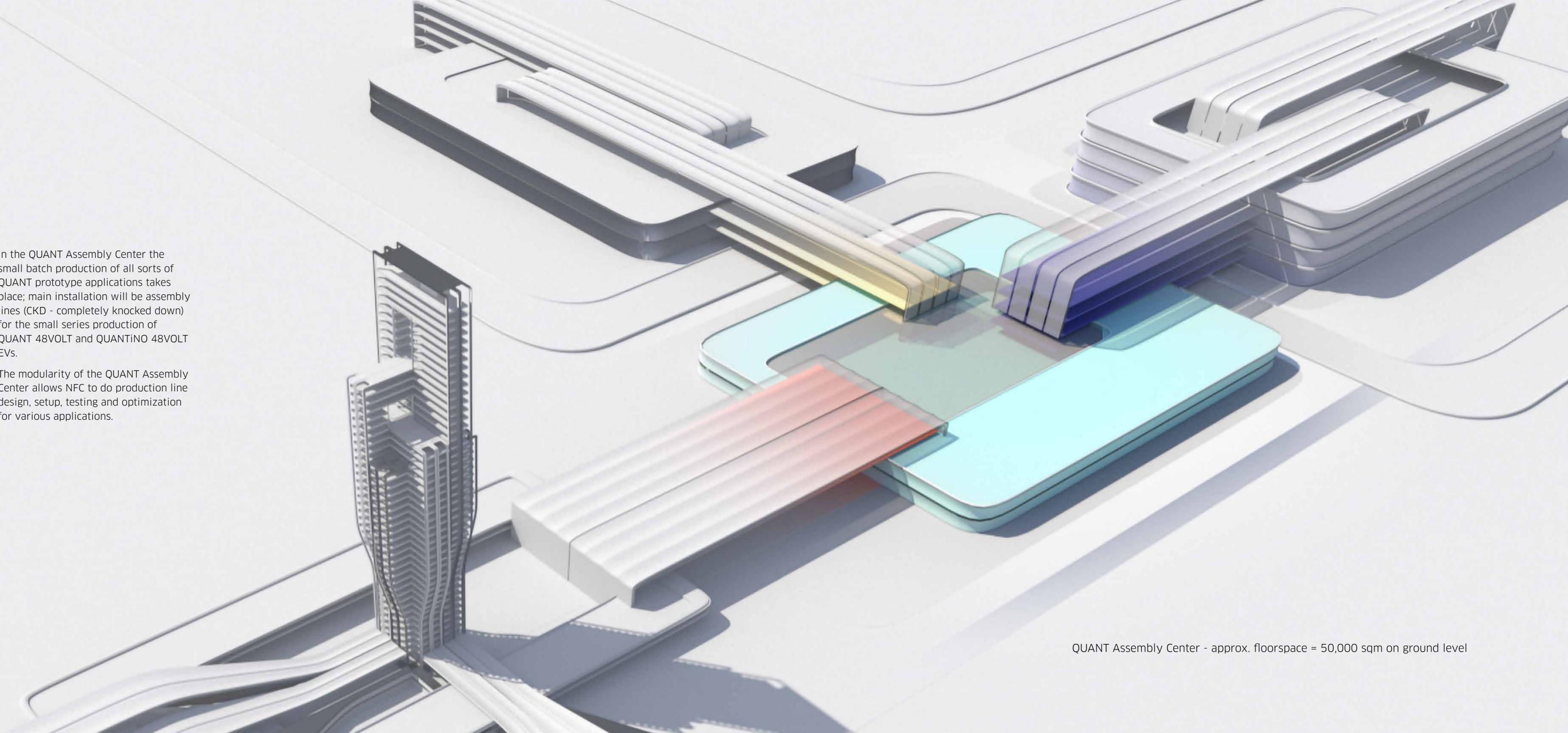
# 4

## QUANT Assembly Center

NFC developed the first low-voltage EV sports cars powered by flow cell energy. The low-voltage driveline architecture developed by NFC is unique to the automotive industry. QUANT prototypes powered by a nanoFlowcell® 48VOLT EV drive demonstrate superiority of nanoFlowcell® low-voltage technology over high-voltage EV technology. EVs with nanoFlowcell® 48VOLT deliver a high degree of functional safety, low production costs and straight forward vehicle homologation. They also demonstrate the opportunities nanoFlowcell® is creating for global mobility, which is economically, environmentally and socially sustainable as well as free of harmful emissions and energy politics.

In the QUANT Assembly Center the small batch production of all sorts of QUANT prototype applications takes place; main installation will be assembly lines (CKD - completely knocked down) for the small series production of QUANT 48VOLT and QUANTINO 48VOLT EVs.

The modularity of the QUANT Assembly Center allows NFC to do production line design, setup, testing and optimization for various applications.



QUANT Assembly Center - approx. floorspace = 50,000 sqm on ground level



Design planning by Zaha Hadid Architects

*NFC's flow cell powered electric vehicles are a world's first and - so far - the only road legal 48 Volt low voltage flow cell EVs. Yet, they are more. They are the expression of our entrepreneurial quest and offer a view of a possible future in which energy is produced in an environmentally compatible manner, is harmless to health in use and is also safe and practical to work with.*

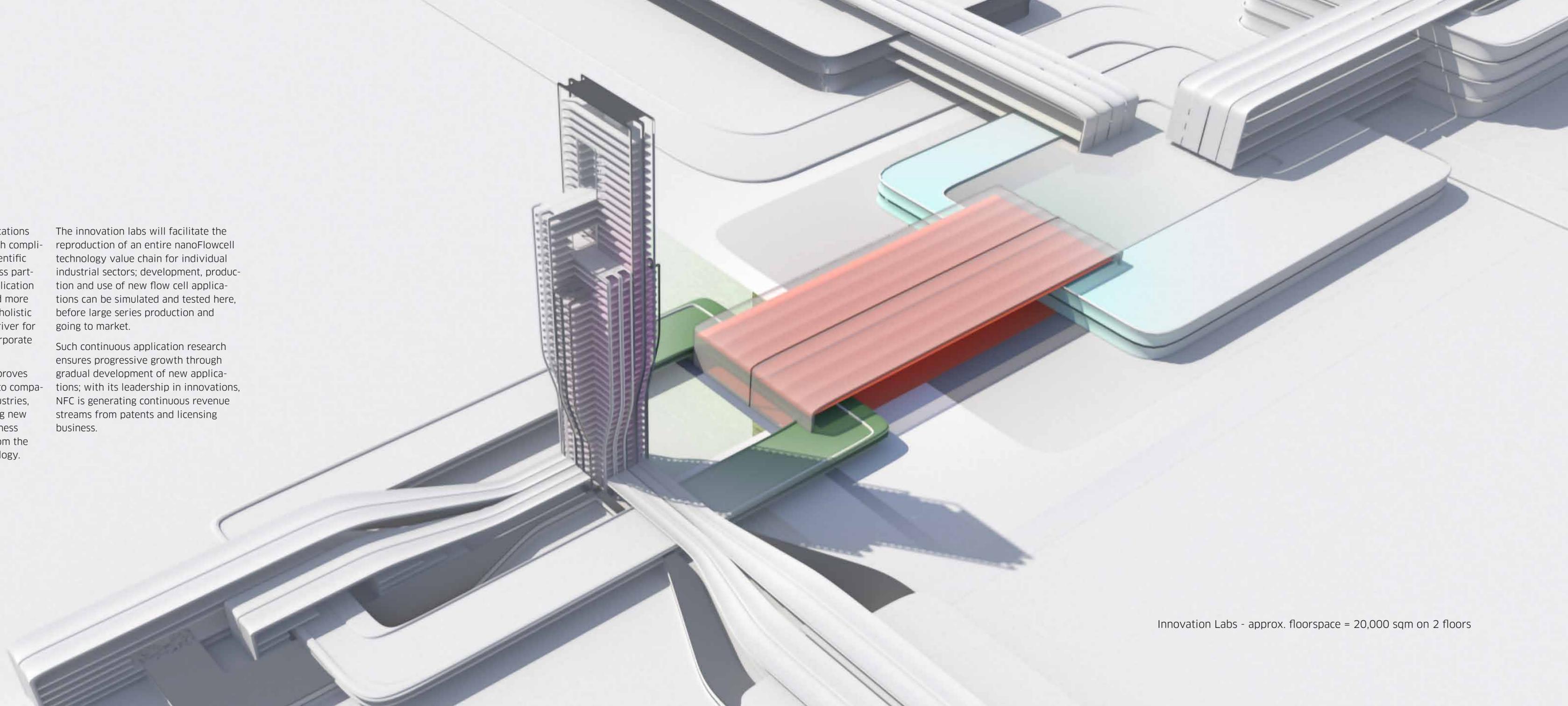
**Innovation Labs**

NFC's advanced inhouse applications research provides the firm with complementary technological and scientific know-how, from which business partners benefit; their specific application developments can be designed more efficiently, thus making NFC's holistic approach to R&D a strategic driver for sustainable and continuous corporate value creation.

With its innovation labs, NFC proves herself as innovation partner to companies from a wide range of industries, supporting them by uncovering new product propositions and business potential, which are arising from the use of flow cell energy technology.

The innovation labs will facilitate the reproduction of an entire nanoFlowcell technology value chain for individual industrial sectors; development, production and use of new flow cell applications can be simulated and tested here, before large series production and going to market.

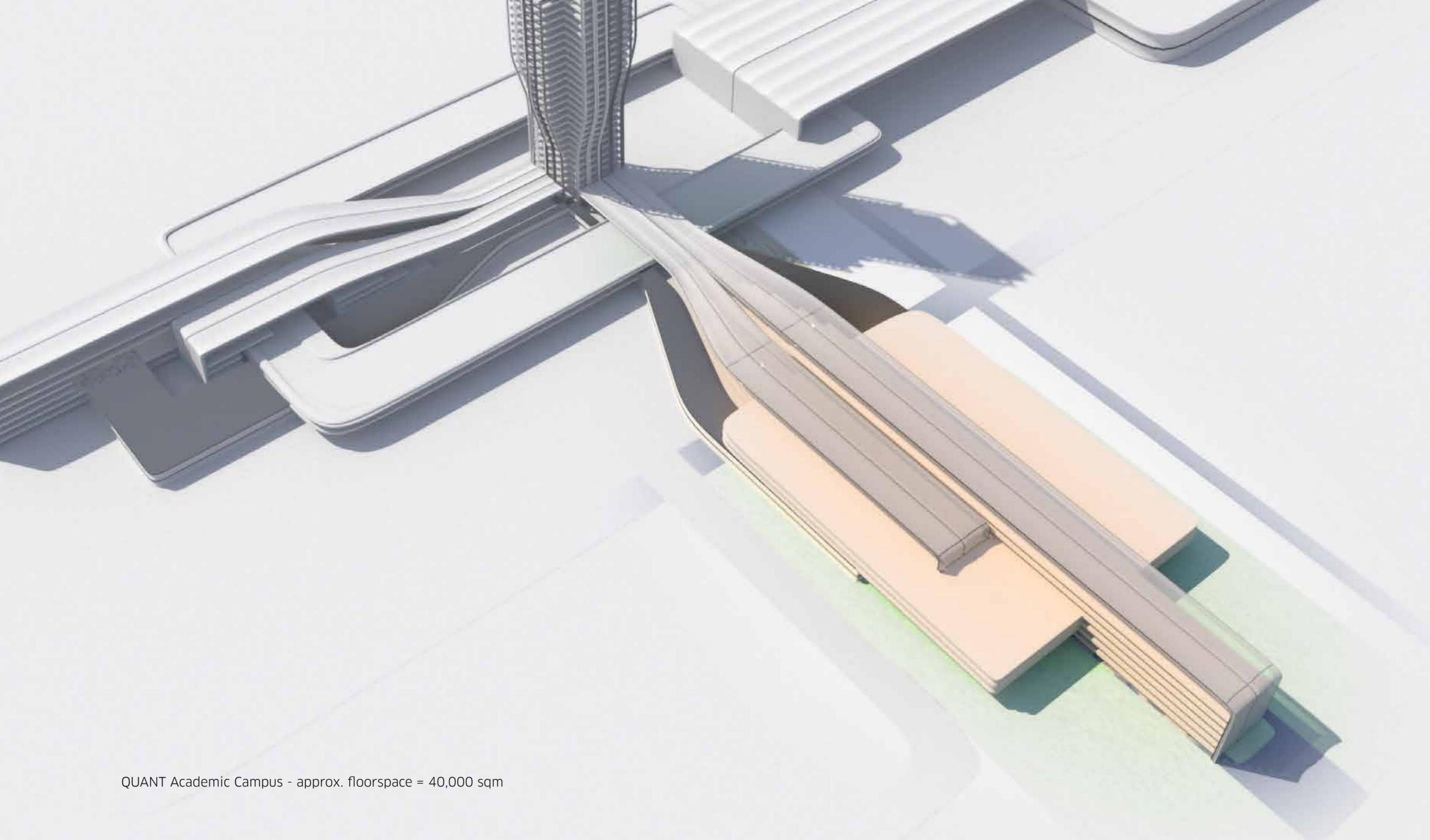
Such continuous application research ensures progressive growth through gradual development of new applications; with its leadership in innovations, NFC is generating continuous revenue streams from patents and licensing business.



*We are not the only R&D firm globally working with compact flow cell designs ... but we are the only company that has developed applications for modern compact flow cells!*

*wnanoFlowcell® opens up completely new technical perspectives in a vast number of applications. Fail-safe power for wide range of industries.*





### **QUANT Academic Campus**

QUANT City will be the academic hub for international scientists and academic researcher in the area of flow cell energy. A vivid academic scene at NFC's university institute for physical chemistry ensures continuous advancements in flow cell technology; scientists from sponsored faculties and university institutes around the world contribute with fresh ideas and new perspectives. Their minds bring forward new academic knowledge in flow cell energy technology and its applications.

The QUANT Academic Campus offers advanced education in chemical physics at master and doctoral levels, which is fully integrated in a university curriculum. Academic sponsorships in chemical physics ensure continuous advancements in flow cell technology, spanning a global network of excellence in flow cell technology around the globe. The campus is open to NFC's own researchers as well as affiliated / non-affiliated scientists.

Asides from the academic services, the QUANT Academic campus will also host NFC's training facilities where NFC staff is trained in new products, processes and methodologies.

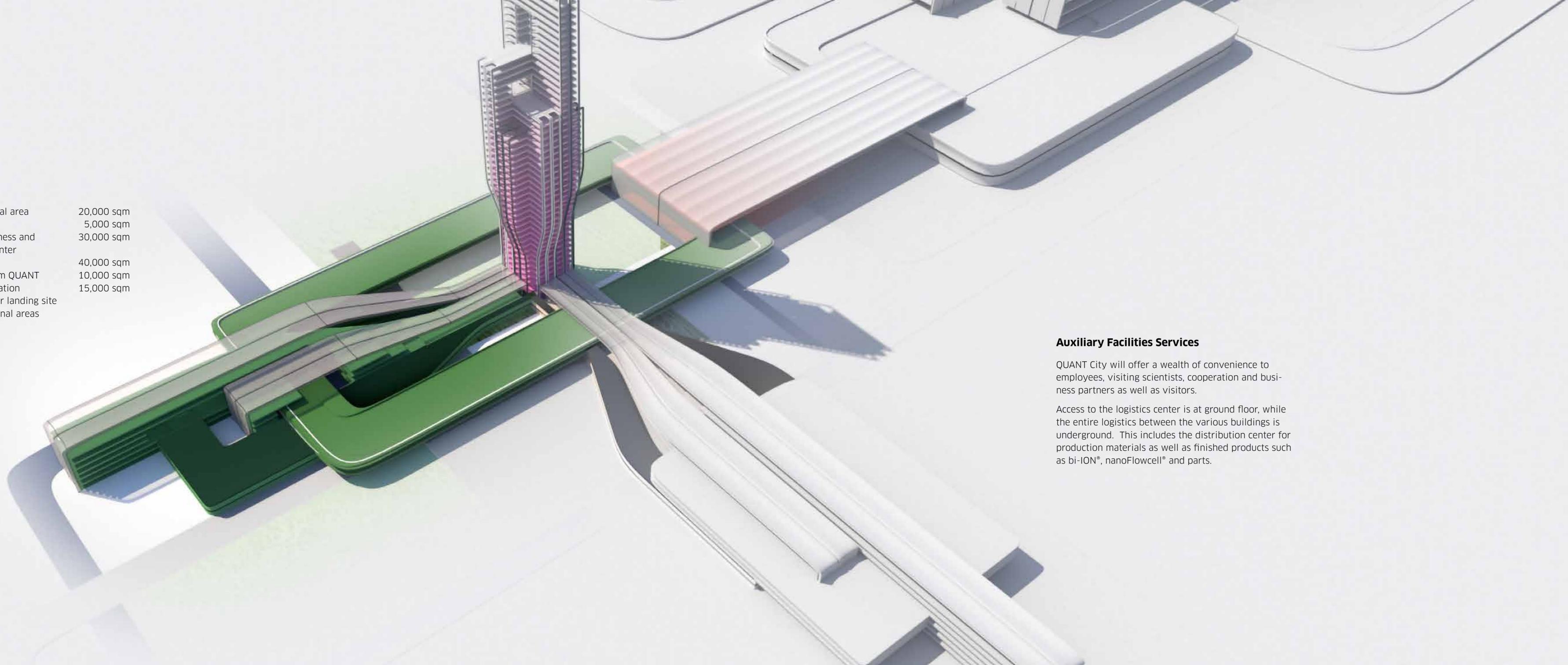


Design planning by Zaha Hadid Architects

*We seek likeminded people who share our vision of a greener environment and a better energy future; people like us, who actively shape the future by advancing and facilitating the breakthrough of clean technologies such as nanoFlowcell®.*



Residential area	20,000 sqm
Hotel	5,000 sqm
Plaza, fitness and health center	30,000 sqm
Car park	40,000 sqm
Showroom QUANT	10,000 sqm
Power Station	15,000 sqm
Helicopter landing site	
Recreational areas	



#### **Auxiliary Facilities Services**

QUANT City will offer a wealth of convenience to employees, visiting scientists, cooperation and business partners as well as visitors.

Access to the logistics center is at ground floor, while the entire logistics between the various buildings is underground. This includes the distribution center for production materials as well as finished products such as bi-ION®, nanoFlowcell® and parts.





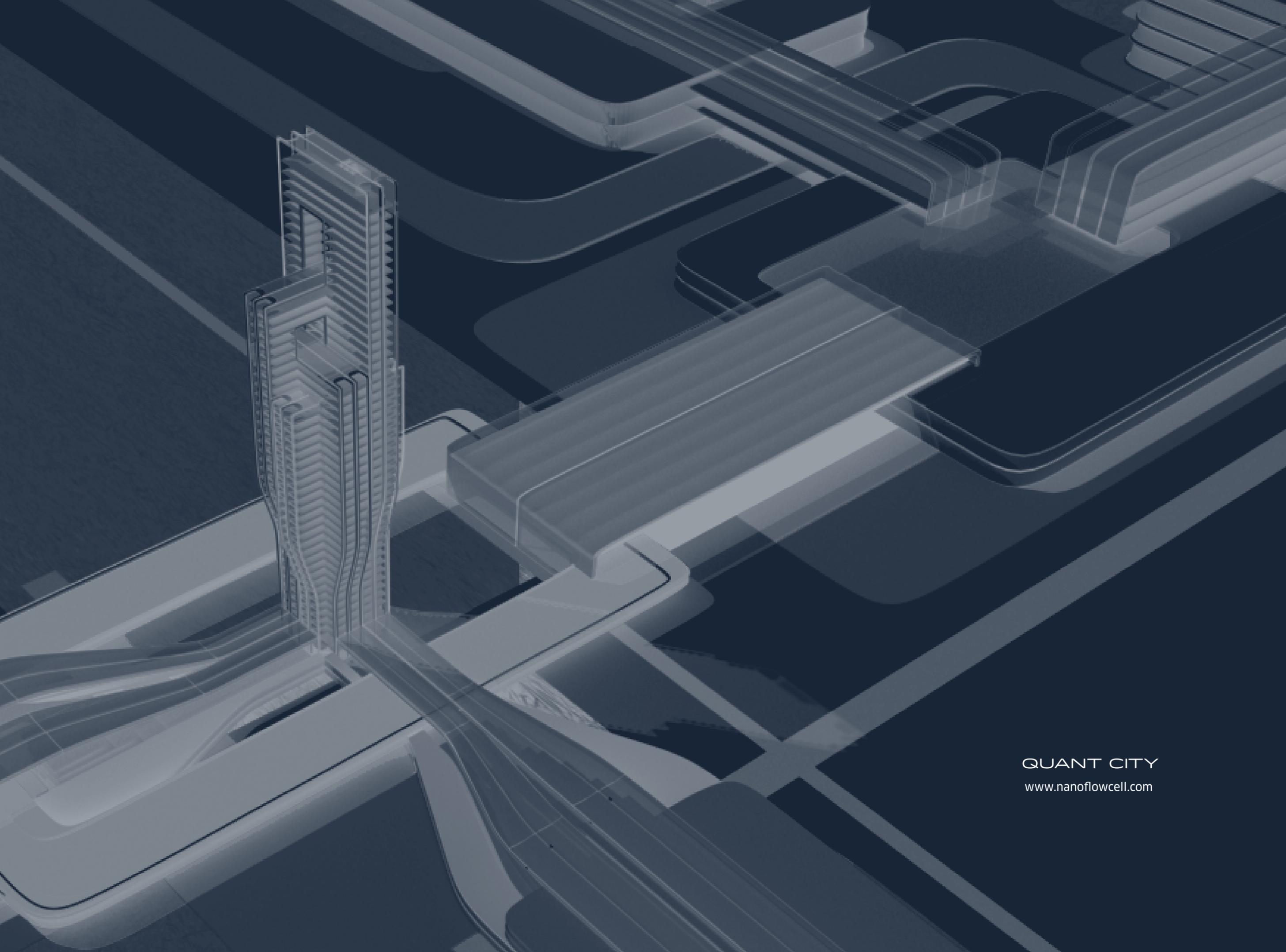
*We want to make people curious, stir emotions, provide food for thought - we want to invite people to follow our ideas with the help of tangible technology and to mentally usher themselves out of our 'fossil' age.*

*QUANT City is the gateway.*

We wish to express our thanks to Zaha Hadid Architects in London, who developed the conceptual design planning on behalf of nanoFlowcell Holdings Ltd.

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