



Swiss Cleanroom Community Event

ExyCell® - The Future of Cleanroom Building

June 2022 |



At a Glance

Experts for high-tech facilities worldwide



History of **100+** years



Sales of **€ 4.1 bn** (2020)

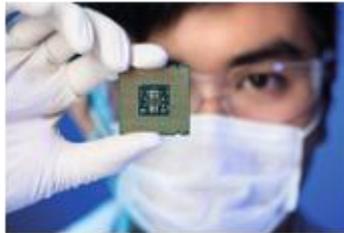


Client-centric operation in **20+** countries



Around **4,900** employees (2020)

Advanced Technology Facilities



Biopharma & Life Sciences



Data Centers



Full Spectrum of Services

From consulting and design to managing turnkey solutions



Deep expertise across all engineering disciplines.

Full range and combination of services offered.

All forms of contract types serviced (reimbursable, open book, lump sum).



The Challenge

The Challenge

Reducing Project Time and Costs

12-21-20 | WORLD CHANGING IDEAS

Inside one of the new, quick-build factories making the Moderna vaccine

The race to produce as much of the new vaccine as possible goes through these factories, which were spun up much faster than usual by building the shells before the vaccine production process was finalized.

COVID-19 treatments: under evaluation

EMA started evaluating a conditional marketing authorisation application for Pfizer's COVID-19 treatment Paxlovid

EMA receives application for conditional marketing authorisation for Paxlovid (PF-07321332 and ritonavir) for treating patients with COVID-19

EMA and the European Network of Centres for Pharmacoepidemiology and Pharmacovigilance (ENCePP) [encouraged](#) all researchers to register their pharmacoepidemiological studies related to the COVID-19 pandemic in the [EU PAS Register](#). They should also upload and make their study protocols public, with a description of the data collected or planned to be collected. This is to facilitate collaborations and speed up the design of observational studies by others. Researchers should include 'COVID-19' in the study title to allow easy retrieval of all COVID-19-related studies via the 'Title of Study' search filter.

Weather it is Greenfield or Brownfield projects, pharmaceutical companies face new challenges:

- The need to reduce time to market
- Minimize at the same time the Investments Costs
- Reduce installation time during project execution
- Evolve with Industry 4.0 advances



Our Facility of the Future: ExyCell®

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Flexible standard, pre-engineered modular elements



Modular Facility of the Future

Our Vision



Standard Integrated Modular Platform

- Highly flexible plant design from standard building blocks
- Cost certainty through standardization
- Adaptable to any biotech single-use layout
- Ball-room layout ready
- Standardized architectural grid
- Free integration of standard process and utilities skids
- Minimized tie-ins and site interfaces
- Clean-room height adapted to the process needs
- Ready for future reconfiguration and refurbishment
- 50% faster time-to-market

ExyCell[®]: benefits

Flexible standard, pre-engineered modular elements

- ExyCell adapts to any equipment layout with few adjustments: we can finalize in a few weeks the facility layout with the Customer
- The layout can be frozen later in the project: investment decisions can be taken at the right time
- ExyCell concept is based on our PIFF™ filter-fan: we realize flexible and ergonomic layouts, from small SAS to large ball-rooms
- ExyCell is standardized: only seven types of ExyCell are needed to accommodate any clean-room layout
- The ExyCell[®] are tied-in and the assembly is commissioned and qualified using our standard set of Documents and Protocols

Up to 50% shorter project duration compared with conventional stick-built facility

A vaccine manufacturing facility with four x 2,000 l single-use bioreactors

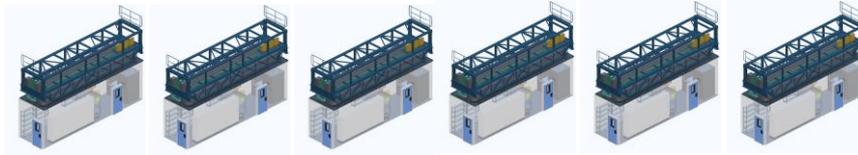


ExyCell[®] are transported in standard containers and installed on standard steel frames



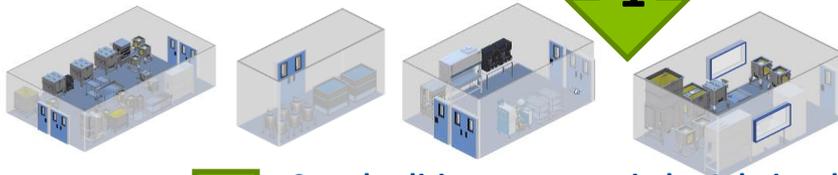
Cleanroom glass walls provide natural lighting and visitors' corridors

Modular – Standardisiert – Vorgefertigt



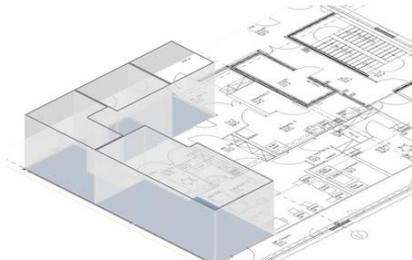
Standardisierte Bauelemente

1



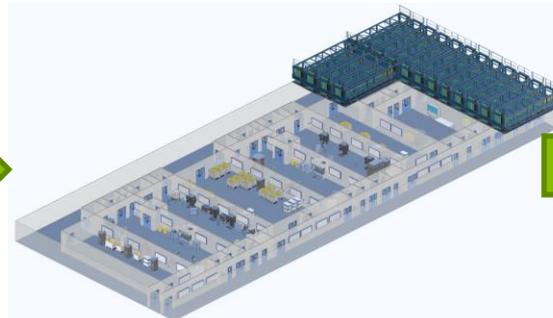
Standardisierte parametrische Arbeitszellen

2



Facility Layout – Drag & Drop

3



Konstruktionszeichnungen - automatisiert

4

Zelltherapie Einrichtung – 3.5 Monate Konzept für MC



5



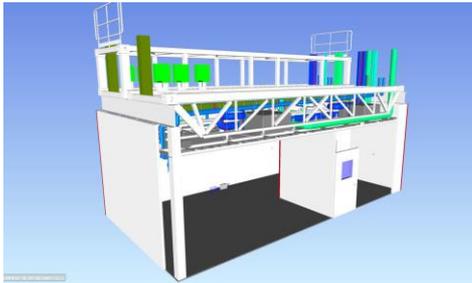
Vorfabrikation der standardisierten Elemente

Energy Saving and Sustainability

ExyCell vs. Traditional Cleanrooms

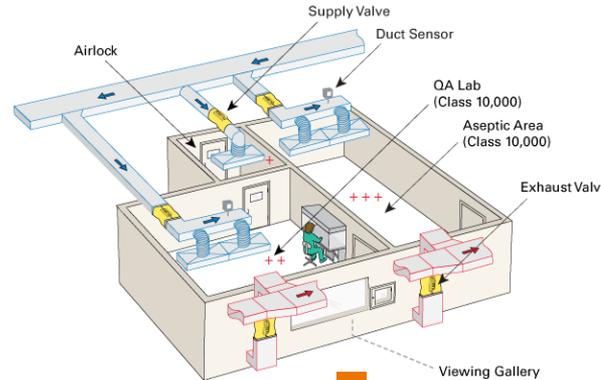
Class C – 1,000 m² energy comparison (Central Europe climate)

ExyCell with PIFF



251 MWh/year

Conventional AHU design



517 MWh/year

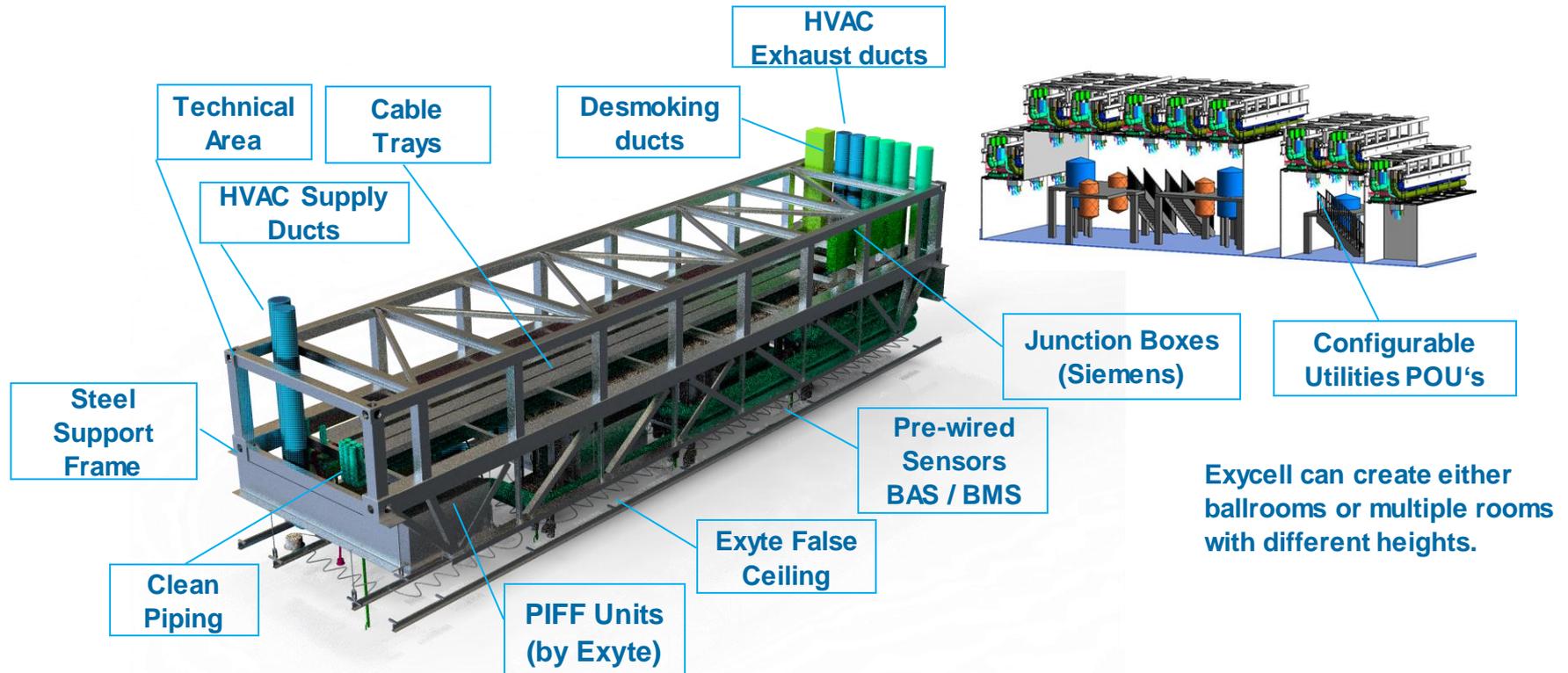
A 1,000 m² ExyCell cleanroom allows:

- **50%** energy saving
- **191** metric tons less CO₂ per year¹
- **56k** Euro savings per year²

1) according to the EPA Greenhouse Gas Equivalencies calculator
2) at 0,21 euro/KWh EU avg price as of March '22

ExyCell® Concept *

Main components



*Patent pending



Project Execution with ExyCell®

ExyCell® Project Execution

Schedule Acceleration: Parallel Construction Onsite/Workshop with Box in Box

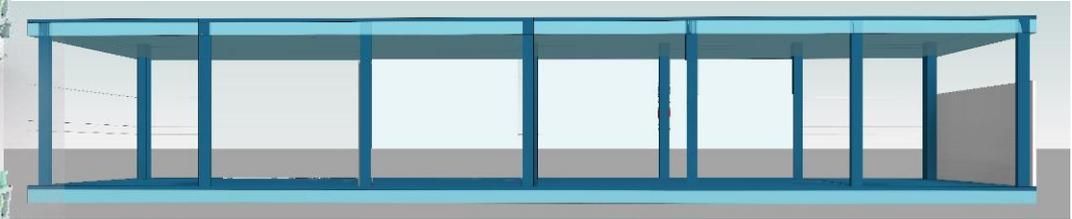
Workshop

we build the cells that will form the inner box, following the configuration table



Site

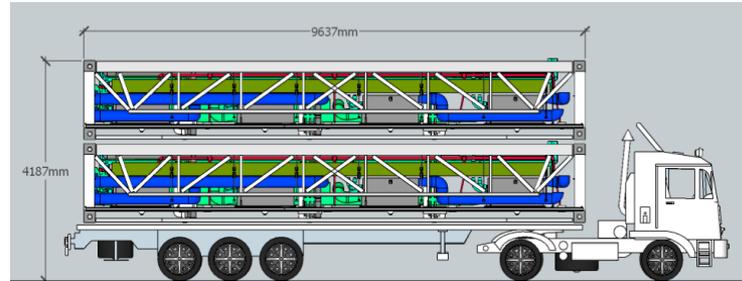
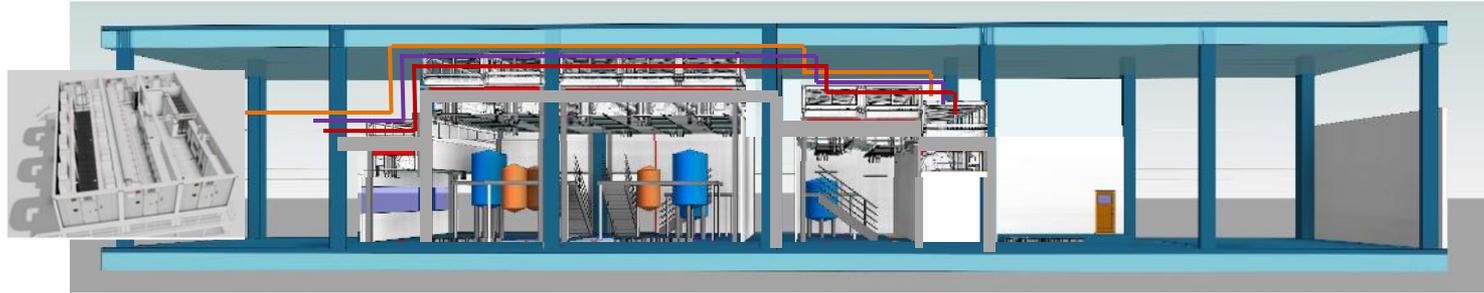
We build the outer box either as conventional or pre-engineered building, and the required utilities distribution networks as piperacks, main cables, AHU's ready for tie-in



ExyCell® Project Execution

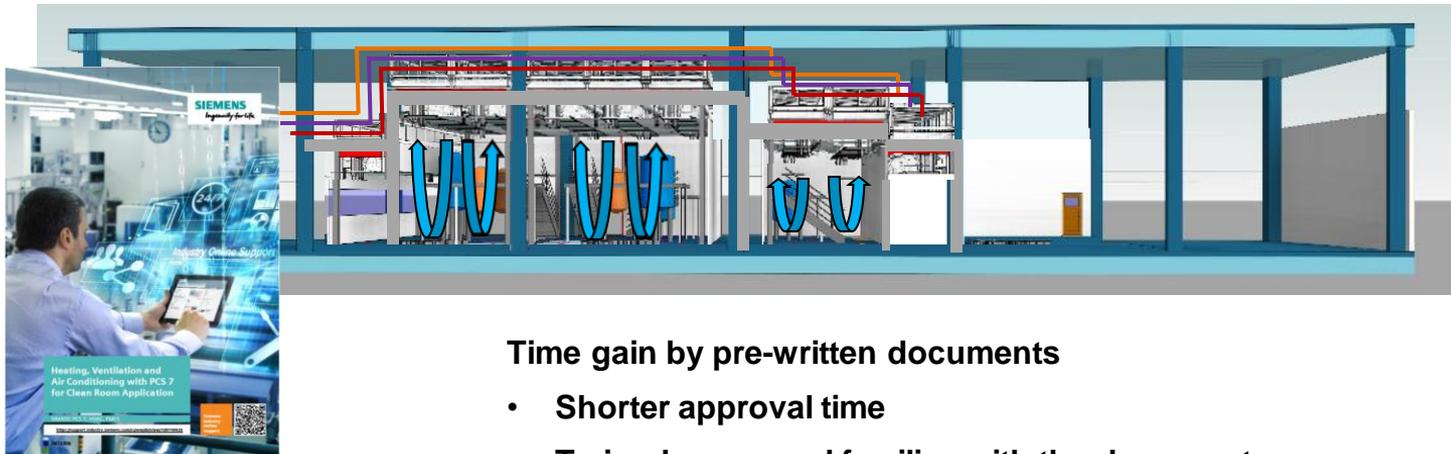
Onsite installation

We deliver the cells, install them inside the outer box and connect to the main utility distribution



ExyCell® Project Execution

Commissioning & Qualification



Time gain by pre-written documents

- Shorter approval time
- Trained personnel familiar with the documents

exyte

Visit us!

ExyCell EU ShowRoom and Test Unit

Located in our Workshop in Osnago (Milano / Italy)



- Open to Clients for a guided cleanroom tour
- StreamWise measure of the PIFF airflows/class
- Testbed for new technologies e.g. IoT / Plug and Produce
- Maintenance Operators Training

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