PPE intelligence
translating process into facility
powered by PORR

HOW DOES PPE INTELLIGENCE EXECUTE A LABORATORY PROJECT?

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ABSTRACT

PPE intelligence delivers an integrated, end-to-end approach to laboratory planning — translating user needs, processes, and capacity analyses into functional layouts, equipment and utility concepts, and IT/automation strategies.
With iterative coordination and modular design, plans stay flexible as requirements evolve.
Supported by PORR's execution strength, PPE intelligence manages tendering, supplier coordination, and construction through to commissioning.

The result: efficient, adaptable, and future-proof laboratories delivered reliably from concept to operation.

Planning and constructing a laboratory is a complex, multi-stage process that requires technical expertise, precise needs analysis, and close coordination with all stakeholders. Some key steps and aspects of laboratory planning are:

1. DEFINING OBJECTIVES & USER REQUIREMENTS

- Clarifying: What tasks should the laboratory fulfill (e.g. research & development, quality control, pilot plant, biotechnology)?
- Involving users to gather requirements.
- Translating user requirements into plannable, technical specifications.

2. PROCESS MAPPING & DIAGRAM

- Analyzing and documenting all relevant laboratory processes (analytical, logistical, hygienic, etc.).
- Visualizing processes in process flow diagrams to derive zones, containment areas, and space requirements.

3. CAPACITY ANALYSIS

- Determining the required equipment, personnel, and spatial resources.
- Simulating potential utilization scenarios based on sample throughput, processing times, shift models, and other influencing factors.

4. SPACE AND FUNCTIONAL PLANNING

- Derived from processes, capacities, and staffing requirements.
- Decisions regarding zoning, separate GMP and non-GMP areas, and safety requirements.

5. EQUIPMENT & UTILITIES

- Recording all required equipment, furniture, and utility connections (water, gases, air, electricity, data).
- Creation of equipment and utilities requirement lists as the central planning basis.

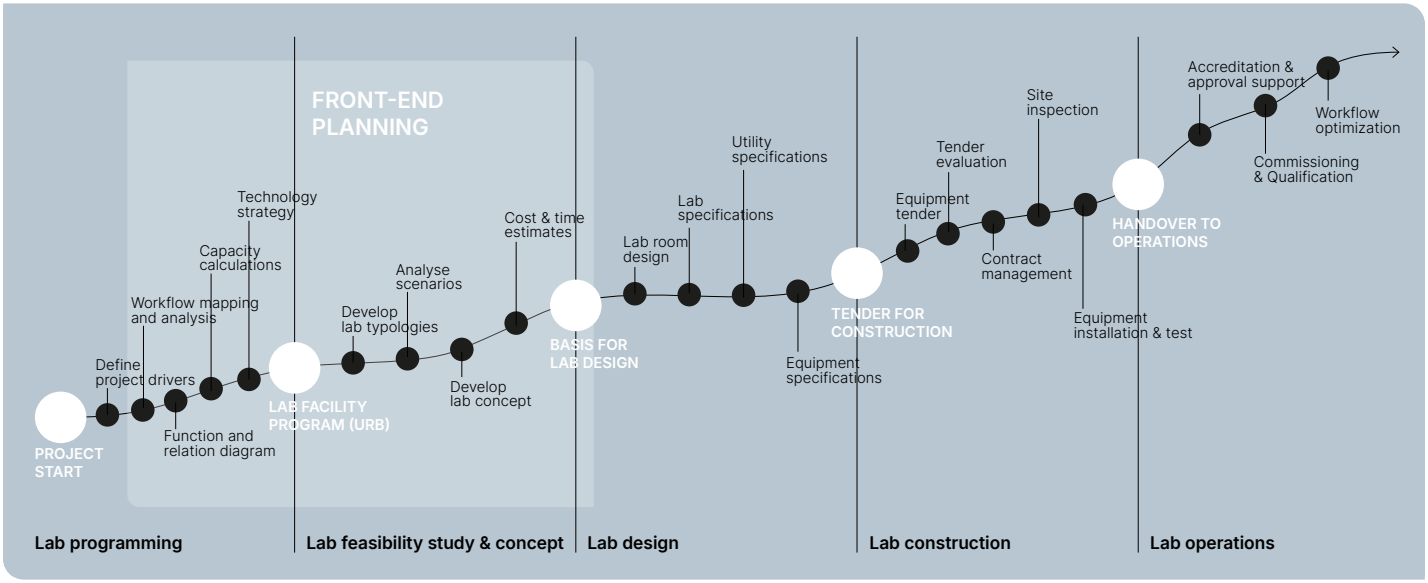

Fig. 1: Consecutive Phases in a Lab Project

6. IT AND AUTOMATION STRATEGY

- Selection of suitable laboratory automation solutions.
- Integration of equipment, software, and data flows into a consistent IT system.

7. DOCUMENTATION AND ANALYSIS AREAS

- Planning of personalized vs. shared documentation workstations.
- Consideration of noise reduction, data protection, and documentation efficiency.

8. FLEXIBILITY & MODULARITY

- Use of modular construction (e.g., as typicals) to build quickly and cost-effectively while enabling future modifications with minimal effort.

9. TENDERING & PROCUREMENT

- Creation of tender packages for furniture and equipment.
- Support with supplier selection, obtaining quotes, and award recommendations.

10. CONSTRUCTION SITE COORDINATION & COMMISSIONING

- Supplier management, site supervision, and coordination of all trades.
- Planning of the delivery, installation, and qualification of equipment up to handover to the users.

This structured approach ensures the functionality, efficiency, and future viability of a laboratory throughout its entire life cycle.
In addition, the other trades involved in building design and technical building equipment are integrated into the planning from the outset. All laboratory planners at PPE intelligence come from a laboratory background, are familiar with daily laboratory operations, and understand the specific requirements of laboratory management. Together with the other disciplines of architecture, building physics, building services engineering, and facility management, as well as the users on the client side, they form the integrated planning team that determines the design principles throughout the entire project and translates them into the laboratory: Translating process into facility. The focus is always on the people who should find their best possible working environment here.
We know from experience that user requirements can change during the course of a project or may not even be defined at the outset. Planning results must be continuously compared with the requirements — or adapted to new circumstances. To accommodate this iterative planning process, a structured approach with thematic workshops, which build upon one another, has proven effective in the planning phase. Regular coordination meetings with all stakeholders complement the meeting schedule during the planning phase.

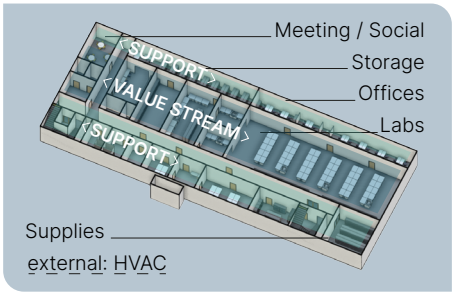

Fig. 2: Value streams translated into facility design

LABORATORY PLANNING AND CONSTRUCTION

Before a laboratory project can enter the construction phase, all contractors and suppliers must be identified and contractually bound. Only then can construction begin. A completed planning phase is always a prerequisite.
At PPE intelligence, we can offer various delivery models, depending on the type and scope of the project and the client's requirements. These range from the early involvement of suppliers as planning partners to a general contractor model. With PORR Industriebau AG, a strong construction group, behind us, we can handle all possible scenarios in the realization of a construction project.
At the same time, we are independent enough to collaborate with other construction companies as execution partners on a project. Especially with laboratory construction, there is no turnkey standard solution.

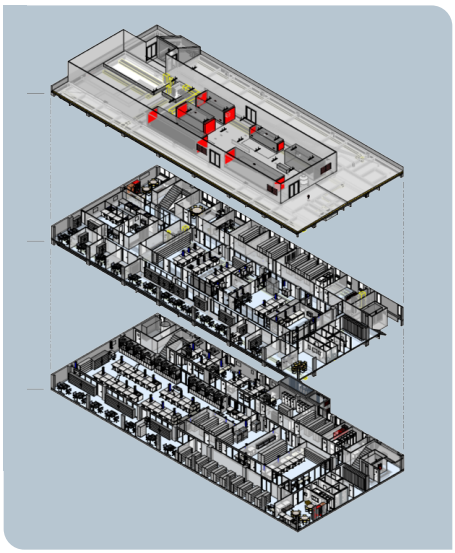

Fig.3: Layered modules — cost efficient and functional

On the construction site, planning and execution converge. Poor planning is immediately exposed. How can the client ensure that everything runs smoothly on the construction site, that no delays occur, and that the budget is not exceeded? For laboratory refurbishments or new builds, good specialist construction management on the site is essential, with continuous coordination of interfaces between all the trades involved, with suppliers, and with the overall construction management. This requires a thorough understanding of the fundamental processes of the work to be carried out by all disciplines. Furthermore, we always ensure that the subsequent phases of commissioning laboratory equipment, which are typically no longer part of the project, can begin without delay. Our services include scheduling the delivery, installation, and commissioning of equipment, as well as supporting its initial qualification.

OUR REFERENCES

PORR INDUSTRIEBAU
REVIEW BD FOR COVESTRO

Covestro intends to build a new laboratory building with 7000 sqm net area in Leverkusen.

PPE has reviewed the Basic Design for the laboratory engineering for Porr Industriebau and will continue during construction phase until handover.

- TIC: confidential
- Chemical labs + pilot plant
- July 25 – December 29

FRESENIUS KABI
CM FOR NEW LABORATORY

PPE takes over the construction management for the new laboratory and pilot facility for R&D of novel clinical nutrition products.

- TIC: 15.3 M€
- Non-GMP facility
- September 25 – March 26

Midas® Pharma
Trust. Expertise. Added Value.

MIDAS PHARMA
CD AND BD NEW GALENIC FACILITY

Midas Pharma intends to build a Galenic facility for the manufacture of kilo amounts of high potent products into an existing building. PPE designed the concept and hands over to contractors.

- Fast track project
- High-potent area (OEB4)
- September 25 – December 25

MIDAS PHARMA
CM FOR NEW LABORATORY

The last stages of building and commissioning were executed under the supervision of PPE disciplinary construction management and handed over to the users.

- TIC: 9.0 M€
- Lab + office
- October 25 – November 25

ELI LILLY
SUPPORT ADMIN LAB BUILDING

Eli Lilliy is in the process of building a new facility for the production of their Mounjaro product filled in ready-to-use syringes. PPE is supporting with the design and execution of the Admin/Lab building.

- Construction related planning
- Design blueprint from Eli Lilly
- November 25 – December 26

Fig. 5: PPE References

We also offer schedule tracking, documentation, inventory management, and site acceptance testing. This ensures a timely start to laboratory operations and guarantees consistent documentation throughout the laboratory's lifespan.

PPE intelligence offers its expertise in pre-qualification and tendering at the interface between planners and contractors to achieve the most time- and cost-effective solution for the client.

We would be happy to provide you with an overview of the complex interrelationships, your options, and our services in this area. In any case, we accompany the client and the users of the laboratory until the handover into ongoing operation.

OUR SERVICE PROFILE

- Laboratory Programming & Laboratory Planning
- Procurement
- Construction Management
- GMP-/GLP-Consulting in the field of laboratories
- Laboratory Automation
- Lean Lab Consulting

Cell Culture Lab	Quality Control Lab	Biotech Facility (≤ BSL-3)
Tech Transfer Lab	R&D Lab	Oligo Production Facility
Animal Research Lab	Packaging Material Lab	Chemical-Physical Lab
Raw Material Lab	High Potent Lab	Molecular Biology Lab
Pilot Facility	GMO Lab	ATMP Facility

Fig. 4: PPE Scope

WHAT'S IN IT FOR YOU

Together with our clients, we define and implement the optimal delivery model including targeted site and team support – all available from a single source. We align governance, contract structures, and information flows with the chosen approach and take responsibility in all project.

NICE TO KNOW

PPE intelligence is an independent consulting and engineering company within the PORR Group. We focus on biotech & pharma, research & laboratory, as well as logistics & advanced factory planning. The PORR Group employs around 21,000 people, including more than 1,000 engineers. Together, we combine **Engineering Agility** with **PORR Stability**.

PREVIEW: PPE TECH SHEET

Feb 26 | Vol #3: Managing Complexity: Factory Planning in Regulated Environments

Factory planning in regulated environments requires structured control of complex production processes and economic objectives. How could this be achieved? Through an integrated planning approach that enables robust, audit-ready, and scalable factory concepts.