



Left: HEPA-filtration housing. Right: Redundant thermal effluent decontamination system

# BSL-3 Laboratory Engineering

## Good practice BSL-3 engineering design

### Facts and figures

#### Target groups and persons

- \_ BSL-3 facility operators and engineers
- \_ BSL-3 users
- \_ Procurement managers
- \_ Building contractors

### Rationale

With the increased risks emanating from emerging and re-emerging infectious diseases, there is an urgent need to build and operate high-containment biosafety laboratories (BSL-3). BSL-3 labs need to be designed following state-of-the-art architecture and should include appropriate engineering and integrated systems for their safe operation.

BSL-3 guidelines and standards tend to be descriptive rather than prescriptive, leaving room to the engineer to propose the appropriate design best to meet the requirements. At the same time, the engineer must cater for the locally available methods of construction and equipment and anticipate the way BSL-3 labs are operated and maintained in a specific country.

The engineer's design proposals and decision will have an impact to the construction cost as well as operational and maintenance cost.

### Aim

The aim of the course is to let participants understand:

- \_ How to translate BSL-3 requirements into a functional and sustainable design,
- \_ Estimate impact of design decision on procurement and maintenance cost (facility life-time cost),

- \_ Understand the design stages and construction tender requirements and scheduling.

### Course contents

- \_ Selected BSL-3 Guideline, and Standards,
- \_ Examples on translation of descriptive engineering requirements into conforming/compliant engineering design,
- \_ HVAC performance, parts & components, and equipment,
- \_ Sanitary and plumbing performance, parts & components, and equipment,
- \_ BMS performance requirements

### Information and enquiries

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