

# HVAC DESIGN BEST PRACTICES FOR SURGICAL ENVIRONMENTS

Healthcare Critical Environment Course

COURSE #: HCEHD4Z101

## COURSE DESCRIPTION

Hospital operating rooms are among one of the most infection-sensitive environments within a healthcare facility. In this course, we will evaluate how airborne particulate, colony forming units (CFU), and other environmental indicators contribute to surgical site infection risk and how corrective airflow control methods can be introduced to provide more aseptic spaces suitable for lifesaving procedures. Although not required by codes or law, proven design solutions and technologies that can reduce airborne contamination can also improve operating room performance.

Phoenix Controls solutions provide proper pressurization control, data visualization and analytics software, and sensors to understand and predict the environmental quality of operating rooms. If these solutions are properly designed and deployed, the hospital can also better manage energy and prioritize patient safety, without compromising their bottom line.

## LEARNING OBJECTIVES

- The driving forces for improving HAI and SSI.
- The importance of airflow patterns and their effect on particle migration using Computational Fluid Dynamics (CFD) models.
- Best practices from other industries requiring clean spaces and how they can positively affect airflow in an operating room setting.
- How pressurization can impact SSIs and controls that can be implemented to reduce airborne contamination risk.
- How a real time indoor environmental quality (IEQ) Surveillance Solution and predictive modeling software can provide operating room monitoring and risk scoring and advise the surgical team whether conditions to operate are favorable (clean) or not (higher risk of infections).
- How to safely reduce operating room energy costs while maintaining indoor environmental quality.
- Lighting infection reduction technologies that can lower bioburden in the surgical space.

SSIs account for

**20%**

of all hospital  
acquired  
infections (HAI)<sup>1</sup>.

SSIs occur in

**2-4%**

of all patients  
undergoing  
surgical  
procedures<sup>2</sup>.

SSIs are associated with a

**2 - to 11 - fold**

increase in the risk of patient mortality<sup>1</sup>.

1. <https://www.cdc.gov/nhsn/pdfs/pscmanual/9pscscscurrent.pdf>

2. <https://psnet.ahrq.gov/primer/surgical-site-infections>



Scan to sign up or visit  
[hwll.co/healthcare-course](http://hwll.co/healthcare-course)