

How to Fit a Square Peg into a Round Hole

Complying with regulatory requirements in a BSL-3Ag facility

Kansas State University's Biosecurity Research Institute (BRI)



State-of-the-Art BSL-3 and BSL-3Ag Facility

Mechanical space
(air handling)

Laboratory &
Administration

Mechanical Space
(waste treatment)



BSL-3Ag Challenges

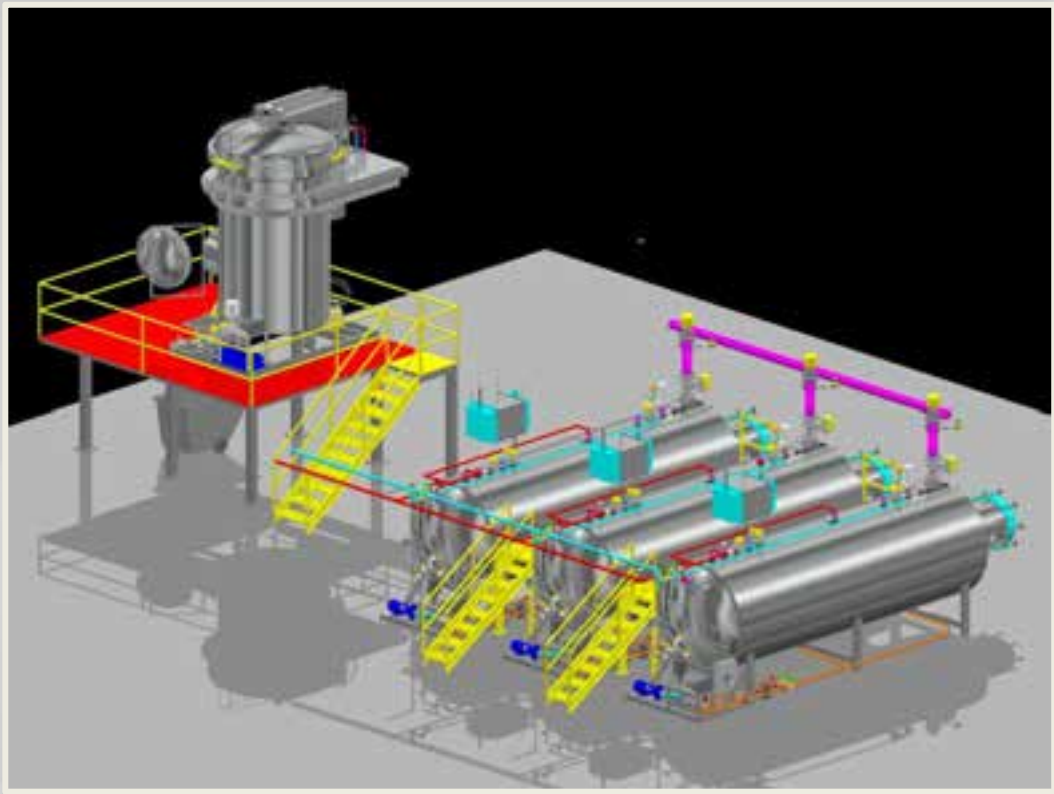


BSL-3Ag Facilities: Required

- Appendix D of the 5th edition of the BMBL states that liquid effluents from BSL-3Ag areas must be collected and decontaminated in a central liquid waste sterilization system before disposal into the sanitary sewers.

BSL-3Ag Facilities: Required

- Appendix D of the 5th edition of the BMBL states pathological incinerators, or other approved means, must be provided for the safe disposal of the large carcasses of infected animals.



Effluent Decontamination System (EDS)

- Three tanks
- 4,000 gallon capacity each



Alkaline Tissue Digester (TDS)

- Used to dispose of all animal carcasses
- 5,000 pound capacity



Validation of the EDS and TDS

- NIH Guideline Appendix Q-II-C-1-b-(5): Liquid effluent from containment equipment, sinks, BSCs, animal rooms, primary barriers, floor drains, and sterilizers shall be decontaminated by heat treatment before being released into the sanitary system. The procedure used for heat decontamination of liquid wastes shall be monitored with a recording thermometer. The effectiveness of the heat decontamination process system shall be revalidated every 30 days with an indicator organism.

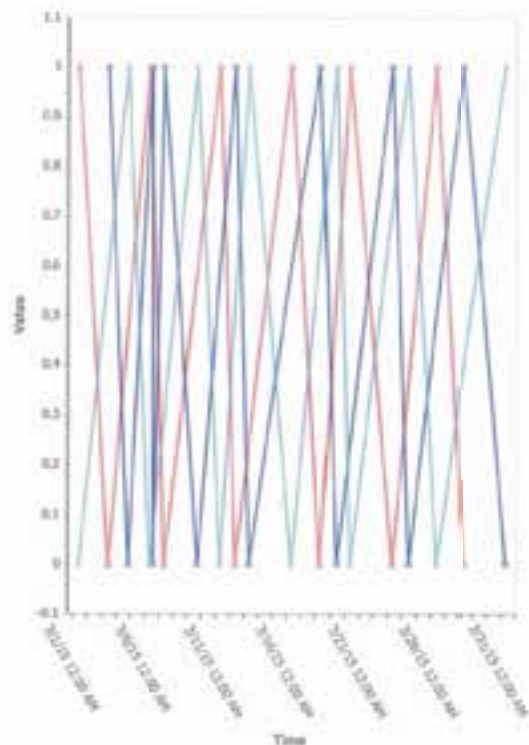
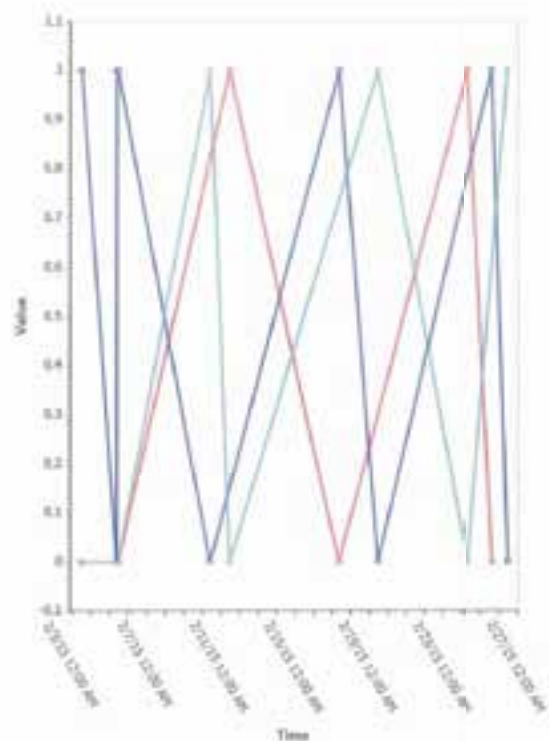






















BSL-3Ag Facilities: Required

- Appendix D of the 5th edition of the BMBL states that HEPA filters must be installed on all atmospheric vents serving plumbing traps.





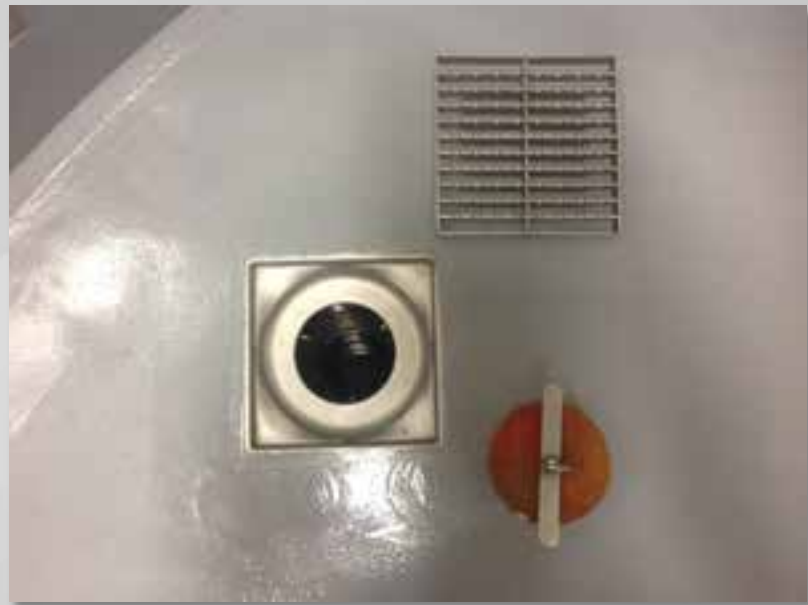






BSL-3Ag Facilities: Required

- Appendix D of the 5th edition of the BMBL states that all BSL-3Ag facilities have to fill drain traps with disinfectant.



BSL-3Ag Facilities: Required

- Appendix D of the 5th edition of the BMBL states that all walls in the BSL-3Ag facility are constructed slab to slab, and all penetrations, of whatever type, are sealed airtight to prevent escape of contained agents and to allow gaseous fumigation for biological decontamination.



BSL-3Ag Facilities: Required

- Appendix D of the 5th edition of the BMBL states that the hinges and latch/knob areas of all passage doors shall be sealed to airtight requirements. All airlock doors shall have air inflated or compressible gaskets.





BSL-3Ag Facilities: Required

- Appendix D of the 5th edition of the BMBL states that all BSL-3Ag facilities have independent air supply and exhaust systems that are operated to provide directional airflow and a negative air pressure within the containment space. A visible means of displaying pressure differentials is provided.





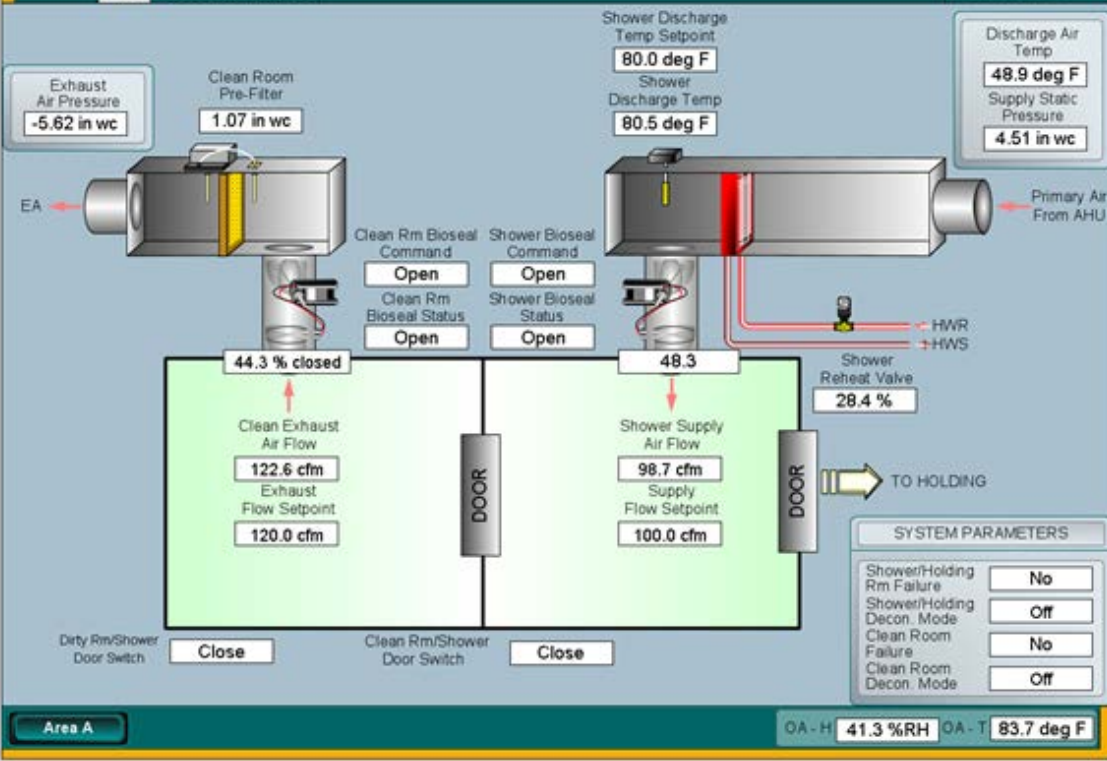
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BSL-3AG Animal Holding

JOHNSON CONTROLS



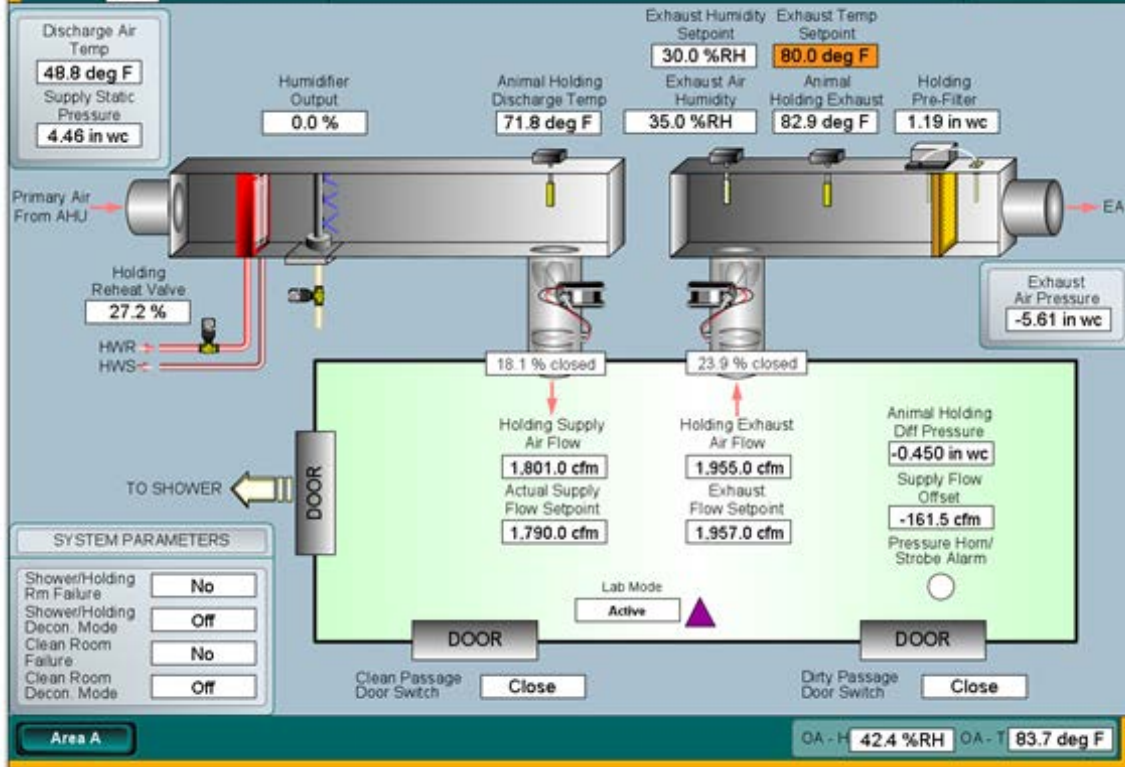
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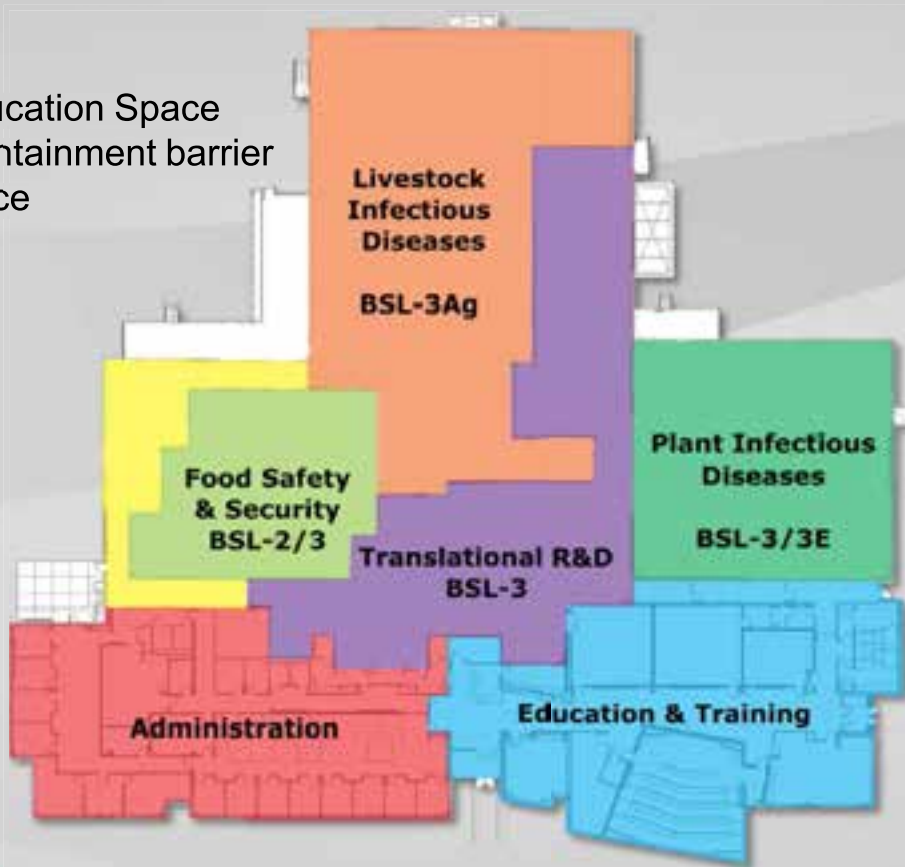
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BSL-3AG Animal Holding

JOHNSON CONTROLS



113,000 ft² Facility
41,000 ft² Research & Education Space
31,500 ft² inside the biocontainment barrier
10,000 ft² is BSL-3Ag space



Where do I put all this PPE?

- Gloves
- N95 respirators
- Safety glasses
- Ear plugs
- Tyvek in tubs
- PAPRs
- PAPR hoods
- Crocs
- Boots
- Green suits

























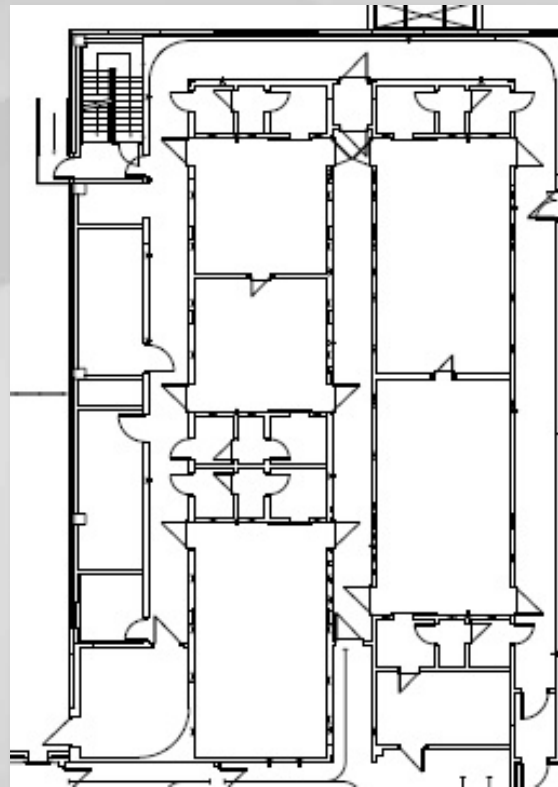


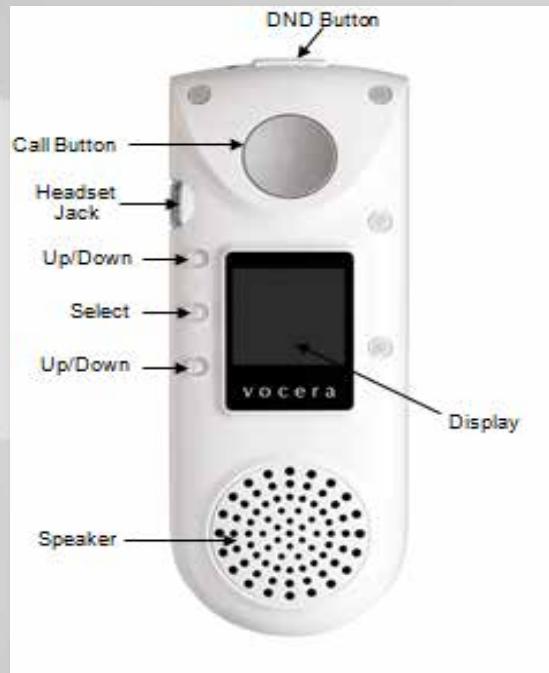




Communication







Data





BSL-3Ag is NOT “Cookie Cutter”



Questions?