

CDC Laboratories: Where contagions meet their match



Scientists who work in these CDC laboratories first put on scrubs, enter through a shower area into the work area, and then either go into the dressing room to put on the positive-pressure suits and enter the BSL-4 laboratory or continue directly into the BSL-3 (Ag) laboratory.

There are regular showers for all workers who leave the area and chemical showers for those exiting the BSL-4 laboratories before removing the positive-pressure suits. There are a series of pressurized interlocks staff pass through to get from one room to another. A computer lets them know when they are cleared to proceed. HEPA filters (high efficiency particulate air filters) constantly help filter and clean the air.

BSL-2, BSL-3, enhanced BSL-3, and BSL-4 laboratory spaces each provide the appropriate degree of containment for the specific microorganism under investigation. The design of the secure facility protects both scientists and the surrounding environment. See video of BSL-4 lab.

CDC is one of only a handful of facilities in the United States with Biosafety level (BSL)-4 laboratory space capable of handling contagions for which there is no treatment or vaccine. BSL levels mean that "4" handle the most harmful material vs. "2" considered as generally safe. This kind of mission requires an intensive emphasis on safety.

The CDC building's high-tech security features feel like something from a James Bond movie. For example, there are biometric security devices, including iris scans and fingerprinting in the high-containment laboratories.

The walls in the BSL-4 labs are thick, solid concrete, designed to maintain pressure differentials between the BSL-4 labs and the rest of the building. Inside the 400,000-square-foot, concrete, structure is core laboratory space for:

- ◇ CDC's bioterrorism preparedness and response program; research involving contagions such as Ebola; respiratory-transmitted diseases such as bacterial meningitis, measles, and SARS; monkeypox; and hepatitis; investigation of new contagions, such as new strains of avian influenza.

CDC protects Americans from major health threats 24/7. Whether threats are chronic or acute, manmade or natural, human error or deliberate attack, global or domestic, CDC is the nation's leading health protection agency.



"Cook tanks" superheat and destroy any infectious pathogens before waste leaves the building. Photo by Kathy Nellis

To learn more, visit www.cdc.gov or call 1-800-CDC-INFO. To view this fact sheet on the web, visit <http://www.cdc.gov/24-7/CDCFastFacts/laboratories.html>

