



Science + Technology

Coronavirus, COVID-19 Response/Support

WSP USA provides specialized engineering and design services for some of the country's most advanced high-containment biosafety level (BSL)-3 and BSL-4 laboratory facilities. Our experts are drawing on deep knowledge of containment best practices to provide planning, design and engineering services for a number of projects that will lend critical support to the COVID-19 response and recovery effort as well as advising public and private clients on containment best practices as they work to quickly respond to this rapidly evolving pandemic.

Current work includes:

CENTERS FOR DISEASE CONTROL AND PREVENTION, EMERGING INFECTIOUS DISEASES LABORATORY

The flagship Emerging Infectious Diseases Laboratory supports the critical work of the U.S. Department of Health and Human Services to protect the nation from infectious disease.

WSP, as the high containment consultant, was responsible for the design, documentation and construction administration of the biosafety level (BSL)-4 and BSL-3E portions of the building.

NATIONAL INSTITUTES OF HEALTH, VACCINE RESEARCH CENTER (VRC)

The VRC is a specialized intramural research program focused on multidisciplinary research to accelerate the development of novel vaccine products. Since its inception the VRC has significantly broadened scientific understanding of medical countermeasures that show potential as vaccine candidates to combat infectious diseases including COVID-19, HIV/AIDS, Ebola/Marburg, and other infectious diseases.



The VRC Laboratory Expansion Building will be a six-story, 45,000 nsf biomedical research facility. It will primarily house BSL-2 laboratories, specialty equipment and microscopy spaces, and administrative and researcher offices.

WSP is providing full architectural/lab planning, structural, mechanical-electrical-plumbing (MEP), civil engineering and landscape architecture services for the new expansion.

CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC), HIGH CONTAINMENT LABORATORY

Outbreaks involving pathogens such as COVID-19, Ebola and Zika place increased pressure on our national research resources to maintain appropriate biocontainment environments. CDC's need for continuous high-biosafety level containment laboratory space is growing as the threats from existing and emerging high-consequence pathogens are discovered. The CDC's new Viral Special Pathogens lab will meet these needs. The 130,000 gsf lab will be a highly flexible biological laboratory comprised of BSL-3E and BSL-4 laboratories and associated support spaces, housing adequate space for 80 separate laboratory suites.



WSP is providing high-containment planning and architecture, MEP engineering, fire protection, IT/data systems design, and security systems design for the project.

Leveraging Containment Best Practices for Pandemic Response

Treating highly infectious patients requires a combination of good protocols and appropriately designed facilities. In a laboratory setting, highly contagious agents can be



handled within primary containment, and scientists are provided with special protective PPE and protocols to protect themselves. WSP can leverage expertise in the design of these facilities to help hospitals create medical isolation wards that are responsive to necessary protocols and ensure the layout, equipment and

engineered systems allow appropriate biosafety protocols to be conducted by the medical staff, without adding complex operational issues.

We draw on our experience in both labs and healthcare to focus our recommendations to ensure patients receive the best medical care possible, while healthcare workers, visitors and the surrounding community are protected from infectious materials.

WSP provides planning and design strategies to address:

Separation and isolation: physical and mechanical separation of the patient, lab and work areas, from the general medical facility and the general public.

Protection: Ensure staff protection during treatment/interactions with the patients and provide support facilities to decontaminate themselves safely.

Material and Waste: Minimize the movement of infected material for analysis and provide appropriate decontaminate equipment to treat infected waste.

Science + Technology Services

Our team includes experts in a range of services for laboratory facilities, including:

- Laboratory planning and equipment
- Vivarium planning and equipment
- Biocontainment design (BSL-4, 3Ag, 3, 2)
- Chemical containment facility design

- Biosecurity and biosafety consulting
- Mechanical, electrical and plumbing engineering
- Fire protection
- Commissioning
- Building technology systems
- Physical security zoning
- Integrated systems engineering
- Incorporate new technologies; imaging, aerobiology, decontamination

Addressing an Urgent and Compelling Need



We are facing an unprecedented challenge in COVID-19, but infectious diseases have long had a negative impact on people worldwide. Passion for science and solutions has been central to WSP's design of BSL-4 labs for more than 30 years. In 2002 WSP was selected to design the Rocky Mountain Laboratories Integrated Research Facility under a U.S. government procurement of "Urgent and Compelling Need," highlighting the essential nature of these facilities long before COVID-19 came about.

That need is, of course, now more urgent and compelling than ever. We are committed to the principles of science and health that have been central to our design of BSL-4 facilities for agencies including:

- Centers for Disease Control and Prevention
- National Institutes of Health
- National Institute of Allergies and Infectious Diseases
- Department of Homeland Security
- Department of Defense

In addition to U.S. facilities, many of the laboratories we have designed around the world – including the Central Veterinary Research Laboratory in Ireland and the National Institute of Virology in India – have been assigned as key national response centers for testing and are engaging in research to combat COVID-19.



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