A79 Masters of Our Own House: The Planning and Construction of the New Defense POW/MIA Accounting Agency (DPAA) Laboratory in Hawaii

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After attending this presentation, attendees will better understand processes related to planning, designing, and constructing a modern forensic human identification laboratory.

This presentation will impact the forensic science community by providing guidance, experience, and lessons learned from planning, designing, and constructing a modern forensic human identification laboratory. This presentation enables future planners to more easily plan and build similar laboratories.

The mission of the DPAA is to account for United States missing persons. These cases typically involve the identification of what forensic scientists often refer to as "residual remains." In November 2015, the DPAA occupied a new 52Kft^2 human identification laboratory on Joint Base Pearl Harbor-Hickam, HI. It joins the 35Kft^2 laboratory in Omaha, NE, forming the DPAA Laboratory system. The Laboratory, located on the third floor of a larger DPAA facility, supports a multitude of capabilities (e.g., DNA sampling, dental comparisons, and radiographic comparisons) needed to identify human skeletal remains. These capabilities translate into the following laboratory spaces: examination areas for large assemblages of skeletal and dental remains; morgue for decomposition and medical examiner-related cases (DPAA provides medical examiner support); maceration room; evidence transfer and long-term storage areas; radiographic facility including a Computed Tomography (CT) scanner; histology laboratory; DNA sampling facility; material evidence examination area; archeological laboratory; skull-photo superimposition laboratory; Scanning Electron Microscope (SEM) laboratory; synoptic and reference collections storage area; X-ray comparison/superimposition laboratory; photography studio; 3D printer laboratory; evidence cleaning, drying, and conservation areas; case file storage area; administrative areas and offices; visitor, tour, and education center; conference, meeting, and training rooms; family viewing room; and a locker room with showers.

The new Laboratory is the result of 14 years of collaboration of a multidisciplinary project team of forensic scientists, Quality Assurance (QA) experts, architects, and engineers. This improved facility meets the needs of DPAA by allowing rapid throughput of identifications involving the commingled human remains of hundreds of individuals. Already, the new Laboratory is showing dividends in the increased rate of identifications as well as a rise in morale of the Laboratory staff. The new Laboratory was accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD-LAB) in March 2016 on its first assessment and is a powerful asset overall for recruiting quality staff.

There were a multitude of lessons learned during this project. Foremost is the requirement that all users of the Laboratory are involved in all stages of the project and practice innovative and out-of-the-box thinking. In other words, a new laboratory cannot be a clone of the old facility. An architectural/engineering firm, experienced with forensic facilities, must be consulted from project inception to provide subject matter expertise and to keep the customer focused. The firm must have experience with QA standards (in particular the International Organization for Standardization (ISO) 17025) and work with the customer's QA staff to ensure the facility can be accredited. The team must work together, accept compromise, and balance a multitude of competing factors that influence laboratory design. These factors include, but are not limited to: facility layout and adjacencies of functional areas; evidence flow; project costs; energy efficiency; security; environmental impact; available real estate on which to build; long-term Operations and Maintenance (O&M) requirements and cost; public considerations; staff quality of life; future and evolving missions; various legislation and mandates (e.g., Americans with Disabilities Act (ADA)); evolution of QA programs; advances in forensic technology; and advances in building design and construction.

Government construction projects are protracted — in this case, 14 years. As such, the new Laboratory was designed with the future in mind. For example, the Laboratory was flexibly designed for expedient reconfiguration of space over time. Capabilities that were not required in the early 2000s were, in most instances, easily fitted into the design as they became needed.

Finally, maintenance staff must be hired and, as the move-in approaches, a plan formulated to move into the new facility.

In retrospect, there is little in the design that DPAA would change other than program more space for some functions. For example, there is a shortfall of examination space since the need to resolve commingled assemblages increased over time. More storage space and offices for key staff are also needed; however, the design is sound and used with great success in 2011 when planning the DPAA satellite laboratory in Nebraska.

DPAA, Laboratory Concept and Design, Laboratory Construction

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