

CASE STUDY

Burns & McDonnell Delivers on the First Beddown for the B-21 Raider

Through planning, design and construction services, Burns & McDonnell established the framework for successful B-21 project delivery, vital to U.S. national security.



Challenge

To prepare the home of the new B-21 long-range bomber, Ellsworth Air Force Base required a detailed assessment of its existing facilities and infrastructure for the aircraft platform, as well as the design of new and renovated facilities and infrastructure to meet mission requirements.

Located outside of Box Elder, South Dakota, the base is more than 70 years old and composed of 36 facilities across more than 400 acres. The planning and design of the project required consistent communication and thorough development to allow ongoing missions and operations to continue. Additionally, the team planned for construction integration of nearly 40 individual projects over the next decade with construction spending estimated at more than \$1 billion.

In addition, planning and design had to be completed for a yet-to-be-built airframe, requiring our firm to identify an innovative approach to develop layouts and drawings.

Project Stats

Client

U.S. Army of Corps of Engineers

Location

Ellsworth Air Force Base
Box Elder, South Dakota

36
FACILITIES

400+
ACRES SUPPORTED

\$1B+
ESTIMATED
CONSTRUCTION COST

Solution

Supporting the base's beddown options required a mix of site and facility demolition, renovation and redevelopment, and new construction. The initial construction phase will be completed across a six-year time frame, requiring complex coordination among stakeholders. Services provided throughout the phased approach included evaluating proposed facility locations, incorporating site and utility capacity analysis for future build-out, and conducting stormwater analysis for upcoming facility development.

With coordination from the Air Force Global Strike Command (AFGSC), Air Force Civil Engineer Center, Ellsworth Program Integration Office, Ellsworth Base Civil Engineer and the U.S. Army Corps of Engineers, the Burns & McDonnell planning team accounted for the next decade of intended design and construction.

With the completion of a thorough master plan, our firm was selected to design and provide construction services for multiple secure operational buildings, aircraft hangars, airfields and infrastructure. Each facility required unique components, as the B-21 is a unique airframe and a center of standardization did not exist. In addition, to extend the life of 70-year-old facilities and infrastructure, our team integrated renovations and reuse of existing facilities.

Our firm continues to serve the project's stakeholders beyond engineering, remaining readily available during construction to answer questions and see the project through to successful completion.

Results

Keeping the future in mind, our team provided recommendations and design for new facilities, infrastructure and utility projects to continue to support the goals set by Ellsworth Air Force Base.

Our team met the scheduled timeline throughout the project and continuously hit all critical milestones and design review deadlines. Receiving positive feedback, the project was granted Exceptional Contractor Performance Assessment Reporting System ratings for quality, schedule, cost control and management.

The master plan laid the foundation for success at not only Ellsworth Air Force Base, but also for the decade of mission-critical, U.S. national defense projects at multiple military installations that will support the B-21 mission.

Our team has been selected to continue working with Air Force Global Strike Command on the B-21 program at Dyess Air Force Base, Texas; Whiteman Air Force Base, Missouri; and for the Air Force Materiel Command at Tinker Air Force Base, Oklahoma, at the depot level.

About Burns & McDonnell



Burns & McDonnell is a family of companies bringing together an unmatched team of engineers, construction and craft professionals, architects, and more to design and build our critical infrastructure. With an integrated construction and design mindset, we offer full-service capabilities. Founded in 1898 and working from dozens of offices globally, Burns & McDonnell is 100% employee-owned. For more information, visit burnsmcd.com.