



Michael Baker

INTERNATIONAL

Gilbane Federal & Michael Baker International

Design-Build Lessons Learned

January 19th, 2023

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F15 Fleet Modernization Project, Kingdom of Saudi Arabia



King Khalid Air Base, KSA

Agenda

- Company Highlights
- D-B Highlighted Project Details
- D-B Lessons Learned
- Questions and Answers

Gilbane at a Glance



Family-Owned, Privately-Held with 4th, 5th and 6th generation family members actively involved for 150 years

- Successfully executing projects in the Middle East since 2005
- Travelers is our Bonding Agent:
 - Bonding Capacity (\$4.5B in Aggregate, \$500+M for Individual Projects)
- International Banking Infrastructure is in place world-wide
- We perform work in local currencies
- Mature Insurance Program includes:
 - Builders Risk
 - DBA
 - Terrorism
 - Natural Disasters
 - Wrap-up Insurance



Michael Baker at a Glance

- Trusted TAM partner for 34+ continuous years
- Awarded 17 IDIQs and stand-alone contracts since 1988
- Successfully performed 270+ Task Order Assignments
- Supported TAM in 14 countries from Africa (Mozambique, Egypt) to Central Asia (Tajikistan, Pakistan, Kyrgyzstan)
- Services provided to TAM encompass all facets of Planning, Design & Construction Support Services
- Skilled with MILCON, SRM, and FMS programs
- Thorough understanding of cultural, religious and host nation differences and requirements

FOUNDED
1940

3500
ASSOCIATES

80+
YEARS SERVING

100+
OFFICES GLOBALLY

\$790M
TOTAL REVENUES

2022
ENR A/E
FIRMS
TOP **30**

WORKED
FOR **38**  USACE
DISTRICTS



D-B Highlighted Project Details



Experience

King Khalid Air Base F15 Fleet Modernization Program, Saudi Arabia

At A Glance:

Client: US Air Force Installation Contracting Agency	Construction Cost: \$164.3M
Services: Design-Build	Size: 420,000 SF
Contract: FA3002-08-D-0008 / TG08	Period of Performance: 11/2014– 03/2017

About the Project:

Gilbane with our teaming partners Yuksel and Michael Baker International completed 420,000 square feet of new construction at King Khalid Air Base (KKAB) in the Kingdom of Saudi Arabia valued at \$160M. The project represents a joint effort by the United States Air Force and the Royal Saudi Air Force to provide the facilities necessary to support the modernization of the F15A aircraft at KKAB.

This highly complex design-build project included three dormitories within the King Khalid training center, a headquarters administration facility, maintenance training facility, aircraft maintenance hangars, a secure avionics communications area, full flight simulator/mission trainer facility, fuel system maintenance hangar, medical clinic, dining hall, student center, mosque, aircraft shelters, towway and ramp, and all site utilities. Gilbane completed the project ahead of schedule and achieved more than 4.7M labor hours with zero injuries or lost time incidents.



King Abdulaziz F-15 Fleet Modernization Program, Saudi Arabia

At A Glance:

Client: US Air Force Security Assistance and Cooperation Directorate	Construction Cost: \$72.6M
Services: Design-Build	Size: 13 new construction or renovated structures
Contract: FA3002-08-D-0008/ FA8903-18-F-0180	Period of Performance: 04/2018 to 01/2020

About the Project:

Gilbane and our teaming partners Skanska and Michael Baker International are providing the design, construction, and modification of facilities, structures, and infrastructure necessary to support the modernization of the F-15 aircraft at King Abdulaziz Air Base (KAAB) in Dhahran, Kingdom of Saudi Arabia. The modernization project requires demolition of existing facilities, as well as renovation of seven existing facilities and construction of six new facilities, including a large maintenance hangar, squadron operations facility, and support structures.

This project supports the RSAF F-15 Fleet Modernization Program, which is a joint effort between the U.S. Air Force and the Royal Saudi Air Force (RSAF), by providing storage and maintenance facilities to support the F-15 maintenance staff as well as the aircraft auxiliary systems.



Prince Sultan Air Base Munitions Storage Area, Saudi Arabia

At A Glance:

Client:
US Air Force Installation
Contracting Agency

Services:
Design-Build

Contract:
FA30002-08-D-0008 / TG454

Construction Cost:
\$46.0M

Period of Performance:
09/2016 to 03/2018

About the Project:

Gilbane with our teaming partners, Skanska and Michael Baker International constructed a Munitions Storage Area comprised of 12 earth covered magazines, a harpoon missile maintenance facility, bomb line holding facility, inert warehouse, fuse and detonator storage facility, assembly load/preload facility, and a domestic water utility and fire protection system pump building. This project supports the Royal Saudi Air Force (RSAF) Fleet Modernization Program and provides storage and maintenance facilities to support Harpoon AUP Missile deployment.

The project is located in a remote area of the existing RSAF military base with limited access to existing utilities. Therefore, all supporting infrastructure including water supply from a new onsite water well, water treatment, water storage tanks, fire water storage, medium voltage electrical distribution, low voltage electrical distribution, telecommunication fiber optic systems, onsite sanitary sewer treatment, perimeter patrol roads, security fencing, and security systems were constructed by Gilbane to support the facilities.



Excellent Record of Performance



Prince Sultan Air Base Munition Storage Area

- “Exceptional” Ratings in Quality, Schedule, Management, Regulatory Compliance, and Safety with “Very Good” in and SB Subcontracting (Interim CPARS 11/03/2017)
- CPARS quotation: “With..Gilbane's execution of a high-quality project well-ahead of schedule; Gilbane is providing exceptional value to the Government and end user.”

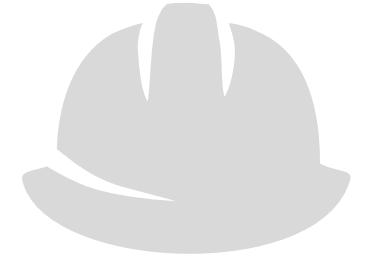
King Khalid Air Base F-15 Fleet Modernization Program

- “Exceptional” Ratings in Quality, Schedule, Management, and Regulatory Compliance (Final CPARS 06/02/2018)
- CPARS quotation: “Gilbane provided outstanding performance of the contractual requirements, often going above and beyond to provide added value to the Government.”

King Abdulaziz Air Base F-15 Fleet Modernization Program

- “Exceptional” Overall Rating (PPQ 02/02/2020)

Excellent Record of Safety



Prince Sultan Air Base Munition Storage Area

- CPARS (11/03/2017): “Gilbane maintains high safety standards throughout all aspects of the work on this project. Gilbane is nearing 1,000,000 safe man-hours without any injuries or lost-time incidents.”

King Khalid Air Base F-15 Fleet Modernization Program

- CPARS (06/02/2018): “Gilbane maintained high safety standards throughout all aspects of the work on this project. By project completion, Gilbane had achieved over 4,700,000 safe man-hours without any injuries or lost-time incidents.”

King Abdulaziz Air Base F-15 Fleet Modernization Program

- PPQ (02/02/2020) “Exceptional” Ratings in answer to the inquiry: “To what extent was the contractor able to maintain an environment of safety, adhere to its approved safety plan, and respond to safety issues?”

Design-Build Lessons Learned



Key Themes of Lessons Learned



- Communication
- Be Informed Early
- Understand Construction Methodology
- Re-Think Delegated Design & Shop Drawing Approach
- Expect Unexpected Site Conditions
- “Local” Subcontractor Experience Invaluable During Design
- Verify Availability of Current Facilities Requirements Documents
- Capture and Act on Lessons Learned

Lessons Learned



Communication

- Effective Communication Between Government Entities Not Conducive with Execution Schedule
- Rare Feedback from Host Nation Reviewers on Design Documents
- Rare Timely End User Feedback on Scope

Be Informed Early

- Understand and Plan for Site Logistical and Access Challenges
- Obtain Upfront: Local Materials Availability Preferences to Incorporate into Design
- “Home Depot”-Type Suppliers Used to Purchase Materials (i.e., No Ability to Rapidly Obtain Specialty Materials During Construction As Issues/Needs Arise)
- Base Preference for Suppliers
- Host Nation Tax, Customs, and Regulatory Requirements



Lessons Learned

Understand Construction Methodology

- Exterior Wall Assembly Not Typical/IAW TAM DIM
- Validate Host Nation Methodology Meets U.S. code
- Design According to Local Labor Force Ability

Re-Think Delegated Design & Shop Drawing Approach

- Lack of “Local” Detailing Expertise
- Unfamiliar with Seismic Bracing Design
- Compatibility of Existing Communication System with Changing Requirements

Expect Unexpected Site Conditions

- Validate Existing Communication System
- Lack of Accurate As-Built Information Resulted in Contract Modifications
- Host Nation Supporting Infrastructure Projects Not Going According to Plan



Lessons Learned

“Local” Subcontractor Experience Invaluable During Design

- Cultural Differences of the People Actually Installing HVAC
- Discerning Site-Specific Requirements (e.g., Sand Filters for Given Location)
- Dealing with On-site Water Storage Requirements for the Design and WW Handling/Management: Very Site Specific

Verify Availability of Current Facilities Requirements Documents

- OEM Facilities Requirements Documents Not Updated
- Limited Distribution of Most Current Facility Requirements Document

Capture and Act on Lessons Learned

- Example with ECMs – The Gilbane team took the lead, having just coming off similar ECMs project and provided spreadsheet of ‘lessons learned’ that were incorporated upfront and had USG agree to changes incorporated to HNC Standard ECM design



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Questions & Answers

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