When providing designs in the Operation Iraqi Freedom theater of operations, two options must be considered as the main effort: whether to design to time or design to standard. Both of these options offer the constructing agent significant advantages; one or the other will be chosen, depending on the site and resources available. With increased military operations in Iraq and the reconstruction efforts, United States Army and Air Force civil engineers are faced with incredible logistic and support design challenges. When choosing which type of design will be suitable for a project, consider variables like time, funding, materials available, and human resources, as well as the experience of the troops executing the project. What exactly does design to time mean versus design to standard? The task of designing in a combat zone to support military operations in an ever-changing war zone requires design flexibility and improvisation. When combined with military operational tempo, this duo presents the battlefield designer with the question at hand: Should I design to time or to standard?

**Design to Time**

To put it simply, when a construction team designs to time, it presents a 90 percent design solution to the construction unit. The unit must then complete the design, adapting it to the challenges presented at the construction site. In past experience, custom designs have not reached a true sense of professionalism when referring to the end product given to the customer and the construction unit. However, this may not be a negative thing. Custom designs during an operation such as Iraqi Freedom are solutions to an operational need that is identified by a military unit or a customer. To understand the shortfalls of a particular military design, the following must be understood:

- The original intent
- The circumstances surrounding its development
- What the customer actually intends to solve

Designs in Operation Iraqi Freedom are not meant to be another addition to a residential living area or a commercial shopping mall; they are solutions to military operational needs. It is because of the flexibility and competence of American troops that our civil engineering effort in Iraq has made, and continues to make, an impact not only on the quality of life that American troops enjoy during their deployment but also on support to the development and reconstruction effort of a war-torn land.

The experience of the 130th Engineer Brigade’s construction section with custom designs in Operation Iraqi Freedom is similar to other units. When a customer identifies a requirement for a project, such as a Southwest Asia (SWA) hut or a simple wall renovation, the designing unit provides guidance to the customer on what can be built based on the restrictions in the area. Sometimes, a customer wants special features in a project that will increase the difficulty of the construction project; however, through deliberate yet brief analysis, the designing unit can help guide the customer in making a better decision regarding the recommended design. The process of making a custom design begins when a unit is officially tasked to design a project—the equivalent of a civilian firm getting a contract. Each construction team must take into consideration that there won’t be as many design options, meaning...
that there are fewer design teams deployed than there are civilian firms to choose from back in the United States.

One characteristic about custom designs in the Operation Iraqi Freedom area of operations is that it will likely continue to change until the project is completed. A design team is often pressed for time when a new design is started. This time constraint, although not unusual among military operations, isn’t common in the civilian world. In many instances, the need for expedited results is addressed because of a serious short-fall that does not allow a unit to perform tasks that greatly affect their security or the well-being of Soldiers. Therefore, designs in Operation Iraqi Freedom have not evolved into a consummate set of construction drawings, but into a solution that, in many cases, results in a 70 percent solution.

Time and money have much to do with the degree of complexity of a design. For example, between the rainy months of January and March, flooding is a very serious issue for many installations and Army units in Iraq. Issues such as mobility and health are highly important in order to maintain combat readiness. Can a design team provide a full survey and go through the never-ending steps of proper design? The answer is no. A quick solution must be presented to preserve what little comfort and life support Soldiers have inside their living areas, since there is no other place for them to go to in Iraq.

Design teams from the Air Force and the Army have been challenged to bring these kinds of solutions to the battlefield. Sometimes personnel and equipment are not available, but through creative thinking, multiple obstacles are breached every day by civil engineering design teams in Iraq. Army engineers from the 84th Engineer Battalion constructed a road to provide access to a logistics support area so Iraqis could bring business and materials. The project is a good example of a quick solution, because it took only two and a half weeks from the time it was identified as a projected need to the time it was completed. The design work was much faster than normal and was complemented by sound engineering efforts during construction. If time had been a concern, the construction team would have been better off using a standard design.

**Design to Standard**

Standard designs are an effective way to provide almost instantaneous design solutions. However, designing to standard is very rare in Operation Iraqi Freedom because of the constraints and given the nature of the mission. Standard designs, although a quick way to get a design out to the customer, present other challenges, to include preparing the site to accommodate a standard design. While a design can be called standard, it will never be truly standard when constructed, because each site is different and presents challenges of its own. In order for a standard design to work properly, there must be communication between the design team and the builder. Additionally, the builder must be able to see implied tasks that come with the union of a standard design at a nonstandard site. In fact, many times the design has to evolve to fit into the site.

A good noncommissioned officer in charge (NCOIC) of construction is essential for executing a standard design. Although a standard design means faster design time, it could involve complications. But Soldiers and Airmen overcome these complications through communication and hard work.

**Conclusion**

Given an expedient design, U.S. Soldiers have had to improvise as they build. Design is not a simple task in Operation Iraqi Freedom; it requires a design team that is flexible, willing to commit, and able to overcome obstacles. Army units are constantly faced with challenges in Iraq; however, through the great work of engineering units and construction elements, they have achieved success in presenting a design solution that meets the needs of both the military and the civilians.

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