

Practice

State Department Streamlines Design Reviews *Internet-based review system available to private A/E's in June*

By putting technology to work, the State Department's Overseas Building Operations (OBO) is expediting design reviews for new embassies and security upgrades at 260 U.S. overseas posts. OBO has adopted the Design Review and Checking System (DrChecks)—a Web-based collaboration tool developed by the U.S. Army Corps of Engineers' Construction Engineering Research Laboratory (CERL)—as a standard practice. DrChecks saves the OBO time and money while helping produce better designs for the facility life-cycle.

As all architects know, although the design phase is a fraction of a structure's life-cycle cost, design-phase decisions ultimately dictate most operation and maintenance costs. When OBO design managers relied on a physical exchange of paper review comments, managing the voluminous quantity from geographically dispersed project teams proved time-consuming and tedious. DrChecks, on the other hand, links all users via a secure, Internet-based client-server system. It has a user-specific interface so that each person sees only those functions and information appropriate for the job at hand.

Right time, right place

OBO is responsible for some 12,000 properties, including embassies, consulates, residences, warehouses, offices and other support structures, plus Marine Corps housing. According to Maj. Gen. (Ret.) Charles E. Williams, OBO's director and chief operating officer, the agency began a concerted effort to improve embassy security after the 1998 terrorist bombings in Africa. The September 11 attacks on the U.S., he says, "have us continuing the upgrades in an intensified mode with even more vigilance." Basic protective measures focus on perimeter defense, building and structural integrity, and proper access control points.

Williams took charge of OBO in spring 2001 and began an ambitious reorganization. The intent was to seek out best busi-



DrChecks had a payback of less than a year on one State Department project. Images courtesy of the U.S. Army Corps of Engineers.

ness practices and use them to create standard procedures that would streamline and refocus the organization. In the design review phase, this means involving all stakeholders to improve the process of first identifying significant design issues and then reaching timely resolution using DrChecks.

Developed by Corps' CERL, now part of ProjNet

The State Department routinely monitors emerging technology and, seeing a potential benefit in CERL's DrChecks, launched it in a pilot program in 1999. "We couldn't initially do business on the Internet because much of our design work is sensitive," explains Robert Clarke, architect and design information technology manager in OBO's Design and Engineering Branch. "As a result of our security concerns, we originally rolled DrChecks out on the Department's secure Intranet, where it's been operating for several years. With Director Williams' new emphasis on e-business solutions, we've been able to work with the Corps in implementing a secure Internet solution using VPN [verified pin number] technology."

CERL has been working with OBO to provide several enhancements to DrChecks under the development name "PROJect NETwork (ProjNet)." These enhancements include access to an "e-government" site, portal tools, and FILER, a system that will allow secure file transfer over the Internet. It is this system that will be made available to private architecture and engineering firms.



DrChecks helps the State Dept. upgrade security at overseas embassies. Protective measures include special blast-resistant wall and window treatments.

Integrated Design Review Process

DrChecks' growing popularity has made it a standard tool in a new process titled "Integrated Design Review Process." This restructured process has six steps:

1. Review kick-off meeting, In the review kick-off meeting, the OBO design team validates the design submittal's completeness, correct security handling, and project cost. The review team will

reject submittals at this step that are over budget, incomplete, or have security-classification issues.

2. Collaborative review, during which reviewers enter comments into DrChecks, which tracks the comments and actions, providing a complete history of each one plus reviewers' contact information so that users can easily follow up. By publishing comments in real time to all reviewers, the tool allows for a more collaborative process.

3. Technical coordination, which is accomplished through an internal OBO meeting to screen for inappropriate, redundant, and conflicting review comments. OBO's design reviews show that, on average, 20 percent of the issues are eliminated at this step, before comments are sent to the A/E partner.

4. Designer response allows the A/Es and contractors to use DrChecks as a structured means for indicating concurrence or nonconcurrence and tag each comment for potential impact on cost, scope, or schedule. By the conclusion of this stage, 70 percent of all review issues usually are resolved.

5. Reviewer backcheck, in which each originating reviewer closes issues in DrChecks or, if any are left open, explains why the A/E's response was not acceptable. An additional 18 percent of the issues are resolved at this phase of the review.

6. Integrated design review meeting, held at a "war room" newly built at OBO for this purpose, allows all stakeholders (either in person or via teleconferencing) to close the remaining 12 percent of issues online. The meeting concludes when all comments have been closed and all design stakeholders have agreed on their resolution.

"DrChecks puts more discipline and consistency into the design review documents than was possible before," Williams says. "Negotiations are friendlier because the government's position is clearly stated through the requirements—and this helps avoid disputes in the first place."

"Significant advantages"

According to OBO's Clarke, DrChecks has three significant advantages in the design process:

- Reduced time to collate and coordinate multiple formats of paper and electronic documents. Based on a \$100 million project, he says, a "conservative estimate of our internal savings is 60 man-hours of processing time avoided."
- Speedier design review, in part due to the quicker processing time but also related to faster, more efficient dispute resolution. OBO has cut about 20 days from each design review and—for the same baseline \$100 million project and a 3 percent inflation growth factor—this avoids \$167,000 in construction costs.



- Improved design quality and associated reduction in change orders and delays—a savings that has been conservatively estimated at about one-quarter of 1 percent for each project. Against the same \$100 million in construction dollars, this translates into another \$250 thousand in

costs avoidance. The total savings from improved design review is therefore \$500,000 for this project, so that DrChecks has had a less than one-year payback at OBO.

Data collection

In addition to facilitating OBO's design review process, DrChecks documents savings and operational data that give the agency a powerful tool for assessing and improving its business practices. With 500 users and 46,000 comments entered for 403 projects since 1998, trends have emerged that show the system's benefits.

Information tracked in DrChecks also allows OBO to pinpoint technical areas for which comments are most prevalent. This type of data helps OBO improve and clarify its design guidelines and project definition documents, statements of work, and requests for proposals by focusing on areas that produced the most comments. In addition, the system can show OBO which A/E contractors most often reject or nonconcur with review comments across different projects and disciplines.

Available to private A/Es in June

Government agencies subscribe to ProjNet through a memorandum of agreement with CERL. Private owners and designers will also be able to acquire these tools through commercial subscription services scheduled to begin operation in June 2002. More information is available online or by contacting Bill East, 217-373-6710, or Jeff Kirby, 217-373-6730.