

CUBIC CIRCUIT



A Royal Australian Air Force F/A-18 carries a Cubic pod on its wingtip during a training exercise. A team of Cubic employees supports air combat training at a base in southeast Australia.



Cubic's MILES-IWS is typically used for combat exercises on land. Recently, however, it performed flawlessly in a training exercise on boats conducted by the Florida Fish and Wildlife Conservation Commission.



Cubic is partnering with UXB International, Inc. on a modular training facility called RATPAC™ that can be reconfigured. Cubic is providing the technology, such as special effects and videotaping for after-action reviews.



Machines like this one were part of a pilot project in New York City that allowed bus riders to pay in advance and avoid lines. The pilot helped Cubic win a \$10 million contract for machines on Select Bus Service routes.

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NEW JERSEY

Cubic makes RATPAC run at Fort Dix base

Exercises designed to teach soldiers and police officers specialized skills, such as clearing a building and neutralizing hostile forces while protecting noncombatants, have been a mainstay of tactical training for half a century. Lifelike replicas of actual buildings — often equipped with special effects to enhance the realism and video recording for later review — are an essential component of such training today.

Many tactical training facilities, however, have inherent drawbacks. Trainees can become familiar with the floor plan in buildings that can't be easily reconfigured, for example. Facilities that accurately replicate real-life scenarios can be too expensive for some agencies, such as smaller police departments.

Cubic is participating in the production of a new kind of modular training system deployed recently at Army Support Activity-Dix (ASA-Dix), a U.S. Army base in New Jersey, designed to address those issues. The system is called RATPAC™, for Reconfigurable Armored Tactical Personnel and Collective training system.

The installation at Fort Dix is a demonstration system that the Army uses to train soldiers for urban warfare. UXB International, Inc., headquartered in Blacksburg, Va., developed RATPAC and is the prime contractor at ASA-Dix, with Cubic as a subcontractor.

The RATPAC system is designed around identical modules, 20-feet long and 8-feet wide, with frames made of structural steel. Lightweight panels, made with a foam core covered on the outside by a layer of tough



Photo courtesy of Wayne Cook, Fort Dix PAO

Officers from the Piscataway, N.J. Police Department Special Weapons and Tactics team storm through a doorway in the RATPAC™ facility at Fort Dix during a demonstration in October.

fiber-reinforced plastic, are attached to the frame to make the outside walls. Breach doors and windows can be easily incorporated into the walls.

A module can be used alone; two or more modules can be connected horizontally to create larger structures; or they can be stacked up to six high to create multistory buildings with balconies for rappelling practice.

“Inside and outside walls, stairways, doors and other features can be quickly rearranged, allowing limitless floor plans”, said Mike Warminsky, a UXB vice president and RATPAC inventor/program manager.

“Even after one exercise, you can go in and move the walls, relocate a staircase,” said Robert Hoppenfeld, the Cubic senior engineer in charge of the Fort Dix project. “That’s when you get into real training.”

At ASA-Dix, six RATPAC modules — three connected side-by-side and three stacked on top — form a two-story box-shaped building. Two more were joined horizontally and placed nearby for use as an exercise control room and classroom for after-action reviews.

Cubic’s role was providing technology. That includes video cameras and microphones inside the larger building to record exercises, a PA system, power outlets that can be turned on and off remotely for control of various training elements, and software and computer systems for playing back audio/video so trainees can hear and see how they performed. Cubic also installed equipment for generating artificial smoke and smells, and pop-up targets for shoot-don’t-shoot drills. All the systems are controlled from a single computer station.

Although Cubic’s subcontract at ASA-Dix was relatively small, less than \$250,000, company officials are



Photo courtesy UXB International, Inc.

A screen shot off of a monitor shows video images from RATPAC — two scenes inside of rooms and an outside view. The video system and other technology in the Fort Dix training center is Cubic’s. RATPAC is a product of UXB International Inc., headquartered in Virginia.

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RATPAC facility wired by Cubic

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confident the installation will showcase Cubic's urban instrumentation technology, a new focus of the company with considerable potential in the marketplace.

Police SWAT teams, security firms, nuclear plant security teams and fire departments "all need training centers and facilities, and this type of modular system offers a flexible and cost-effective choice for building them," said Gary Washam, Director of Advanced Programs for Cubic Simulation Systems, Inc., based in Orlando, Fla.

"This is a reference site at ASA-Dix," Washam added. "A lot of people will see this. There is a need for this at all the smaller training facilities."

The system attracted considerable attention soon after it went up.

"About a week after it was installed, it got a lot of attention" during a demonstration for influential officials involved in tactical training, Hoppenfeld said. "The group of people who visited got excited and said, 'Hey, this is really easy to use.'"

The key to that, Hoppenfeld said, is Cubic's Urban Combat Operation Management system, which automatically records all the action from the video cameras and allows searches for relevant scenes by time, without affecting what is being recorded.

"You can move seamlessly from live to historical," Hoppenfeld said. "There is no waiting, no nothing. Everything is instantaneous."



Photo courtesy of Wayne Cook, Fort Dix PAO

Robert Hoppenfeld, the Cubic senior engineer in charge of the RATPAC™ project, works at a computer in the exercise control room.