NEWS

Honolulu airport gets control tower for the 21st century

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The next generation of air traffic control technology is now installed at Honolulu International Airport, where a new ATC facility is ready for a Federal Aviation Administration inspection next week.

You still have to climb narrow metal stairs to get to the top of the tower, but when you get there, you get a breathtaking view and a sense of how much air traffic control technology has changed since the days of circular radar screens.

The huge flat-screen displays now used were first installed at the FAA facility within Diamond Head and came with the controllers when they moved to their current work center, at the end of a road that starts on Hickam Air Force Base.

Local FAA officials say the move is done, but there are still rooms full of boxes. It doesn't matter. The inspectors who arrive here next week from the mainland want to see if all systems are go, not if files are still crated up.

At 70,000 square feet, the new facility is much larger than the old one, providing more work space for the controllers who watch over both civilian and military air traffic. There is even a secure room for classified discussions of military aviation activities. That's downstairs from the tower, as are most of the controllers who track planes through Honolulu air space.

"We're at the state of the art on risk mitigation," says air traffic manager Bob Rabideau. "We have training terminals here that are the same as the ones we use for landing planes, so if the main terminals go down we can use the training terminals. And if that doesn't work, we have a redundant facility used by the Hawaii Air National Guard at Wheeler Air Force Base."

Rabideau takes tech with him as he walks around the facility. It looks like an older, clunkier cell phone. It's really an on-premise phone on a secure on-site system, an electronic leash with a 700-foot radius that enables him to be reached wherever he walks.

This is reasonably cool, yet seems old-fashioned as Rabideau gives a tour of all the other new technology in the facility, such as all-digital recording equipment to log what the controllers and pilots say to each other.

One thing neither he nor anyone else will see while walking through the facility is an old-fashioned radar blip. It's digital now, with some data coming in over microwave relays, some via satellite and some over fiber-optic links.

Planes appear as moving pieces of data including airline, altitude and speed. Controllers program the display to show certain kinds of flights in specific colors.

There is more to come. Global positioning satellites will take over much of the functions now carried by digital radar.

"We envision a day when we don't use radar," says Bob Rabideau. "When we go to GPS it will be as significant as when we first started to use radar."

GPS will not only deliver more data, especially weather, but it will deliver directly to small aircraft pilots a lot of information they get from the tower now. More than a third of the traffic at Honolulu International is civil aviation, neither commercial nor military.

"GPS will work in places where radar doesn't work," says assistant air traffic manager Debbie Saito. "We're testing it in Alaska. If it works in Alaska it should work in Hawaii."

Keeping it powered up

The FAA's technology would be useless if the power went out.

"This place has backup systems like you wouldn't believe," says Russ Yoshimoto, who watches over those systems. "Last week we actually had a power outage and the backups kicked in with no interruption to the air traffic control screens and only a few seconds interruption in the regular lights."

Yoshimoto's computers display full-color graphics that show the wiring for the three big U.P.S. (uninterruptible power supply) systems visible outside his office and the two huge 5,000-gallon, 1,000-kilovolt emergency power generators just beyond. Clicking on any part of the display produces a close-up of the wiring.

High-tech training

Some 90 air traffic controllers work in Honolulu, mostly certified professional controllers but also some trainees. In a sense they're all trainees, though, because controllers are always honing their skills and adding new ones.

"We have 95 lessons, available 24/7," says Benjamin Lee, who manages the training sessions and created some of them. "We try to make them interesting, so we add music and sound effects."

The training never stops. Even in the room where flights are tracked across regional air space, some controllers are assisted by others. "That guy's talking to aircraft," says support specialist Rick Sullivan as he gestures across a control room that is darker than most restaurants. "And that guy over there is assisting. He helps keep track of things and takes phone calls so the other guy can keep his focus." It looks like a situation where even equals can learn from each other by watching each other work and forming opinions about their decisions and style.

Now we walk over to the tower. A brief elevator ride and then we mount the stairs. The final flight is a tight curve, like the last flight up on the rim of Diamond Head. It takes a moment to notice the flat-screen monitors because the view from the tower is splendid. But the controllers up here, the ones actually handling takeoffs and landings, have access to the same digital radar.

Though Sullivan has been around awhile, he prefers the new screens to anything he worked with when he was younger. This is not to say there isn't a mischievous smile on his face as he points to a couple of mechanical devices hanging from the ceiling. They look like theater spotlights. And in a way they are.

"These are for signaling pilots whose radios go out," he says, pulling one down on its spring-loaded cable. "We can sight along this line" -- he points to a pair of metal clips with holes in them -- "to aim the spotlight right into the cabin, get his attention and flash a message." No complicated code, but a choice of colors and flashing vs. steady light can signal pilots whether to stop or go, and more. "We probably have to use one of these at least once a month."

If you're reading this article not to learn about the FAA's new technology but to get a sense of how safe the skies are these days, you should know that Honolulu has a big advantage in that arena -- air traffic volume has actually declined here.

Since 1980, while the skies have become congested on the mainland, Honolulu arrivals and departures have fallen from as many as 1,600 a day to 1,100 a day. One major factor: bigger jets that carry more fuel and can make trans-Pacific flights without Hawaii stopovers.