

Burn notice

Boeing works with the FAA to standardize airplane flammability testing requirements

By Dina Weiss and photos by Jessica Oyanagi

What could have been a sticking point between Boeing and the U.S. Federal Aviation Administration has turned into a collaborative effort to develop standardized test methods that ensure Boeing products—and those of other airplane manufacturers—are safe.

The issue first sparked about a year and a half ago when members of the Commercial Airplanes flammability group discovered an adhesive used in all commercial airplanes over the past two decades did not perform the way the U.S. regulatory agency's rules required.

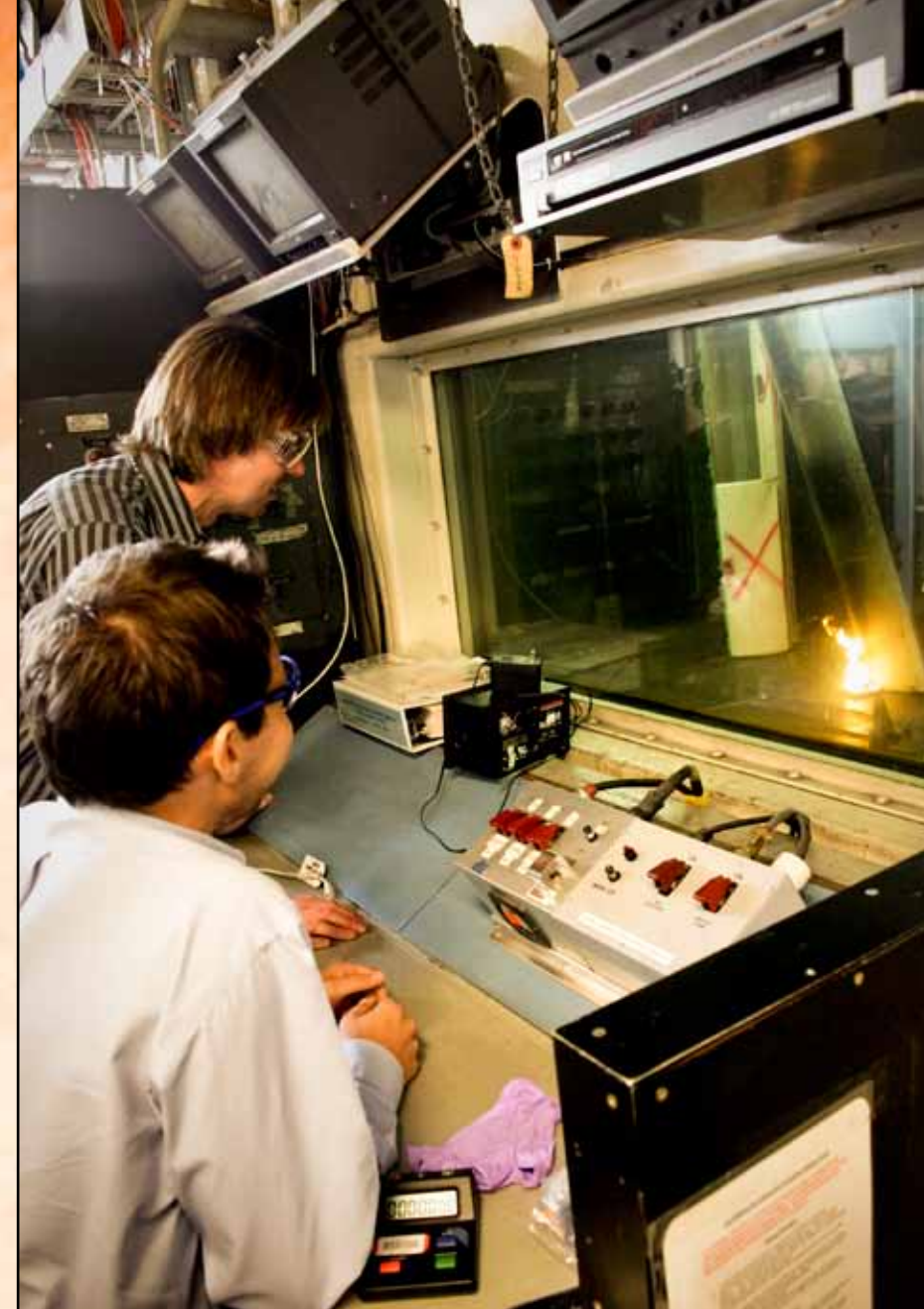
Using the testing process outlined in FAA rules, team members found that the adhesive passed all but one of the requirements laid out in the regulation.

"When lit with a Bunsen burner, the flaming adhesive didn't self-extinguish within the allotted time," said Dan Freeman, manager of the Commercial Airplanes flammability group.

Failing this requirement threatened to immediately halt delivery of all commercial airplanes, everywhere.

"We're currently working with manufacturers to develop an adhesive that will comply with the regulation," Freeman said. "In the meantime, we've teamed with the FAA to develop a new test method, which both parties agree is an equivalent way to show compliance and at the same time show the parts we've been installing on airplanes for decades are safe."

The new method is called the foam-block test. Instead of lighting a small piece of



"Our journey with the FAA to develop this new test method has led to us working together on our compliance process as a whole."

– Dan Freeman, manager of the Commercial Airplanes flammability group

material containing the adhesive, a piece of urethane foam is lit and placed under a full-sized stowage bin that has the adhesive in the joints. This is a much more realistic way of representing an in-flight fire, according to Freeman and the FAA.

"Our journey with the FAA to develop this new test method has led to us working together on our compliance process as a whole," Freeman said. "We knew that if we weren't aware of the FAA's flammability requirements for this adhesive, other aerospace companies using the same type of material probably weren't either. We wanted to make sure the same standards were being applied to everyone, including our suppliers."

"Working through this process has definitely improved our relationship with the FAA," said Doug Lane, director, Airplane Certification and Regulatory Affairs.

Allen Kenitzer, FAA communications manager, agrees that working together on the flammability issue has improved the relationship between Boeing and the regulatory agency.

"It's enhanced our ability to work with Boeing in a collaborative and standardized manner as we continue with our mission to maintain and improve safety in all technical areas, including the flammability area," Kenitzer said.

Back at the lab, Freeman and his team are using these lessons learned as they conduct flammability testing on Boeing's development program airplanes.

"The collaborative approach we've developed with the FAA," he said, "will continue to help us reach our common goal of ensuring the compliance of Boeing airplanes." ■

dina.m.weiss@boeing.com

PHOTOS: (Far left) Performing the new foam block-based flammability test are, from left, Dan Slaton, Flammability Safety & Airworthiness engineer, Boeing Commercial Airplanes; kneeling, John Vance, Propulsion Test Lab engineer, Boeing Test & Evaluation, and Matthew Anglin, 767, 777 and 787 Flammability engineer; and, in background, Dan Freeman, Airplane Programs Flammability Integrator, Commercial Airplanes. **(Above)** Observing the test burn through safety glass are John Vance, foreground, and Matthew Anglin.