Technology transfer enables the sharing of, intellectual property, technology and inventions between the federal government and outside partners. Ideas can be developed into invention s using federal labs and resources to fulfill either private or public needs. The FAA can protect the results of these collaborative efforts through the use of patents. In this video you will explore labs around the technical center, relating to research and development and testing and evaluation.

The pavement test facility. The construction was a collaborative effort between Boeing and the FAA. It spans 300 yards, and consists of several asphalt, cement, and soil configurations, to imitate different runway environments. The testing apparatus, the N.A.P.T.V., or National Airport Pavement Test Vehicle, weighs 1.2 million pounds, and has the ability to vary weight and wheel configurations to mimic different aircraft.

It is being used here to test the EMAS system, which is created and patented here at the FAA. These blocks are fastened to the ground and absorb kinetic energy from a plane that cannot stop itself before the end of a runway. It is also being used here to measure the friction between a wheel and a snow covered runway.

The FAA's cockpit simulation facility hosts several flight simulators. These machines are equipped with special projectors with parabolic screens.

Current use consists of testing of simulation programs with goals to train pilots on these machines in the future.

The FAA's mock tower is a simulated air traffic control tower. It is imperative for safety reasons to test systems before they are deployed into the field. This is the only place in the world where the various ATC systems relating to tower, TRACON, and EnRoute can be tested side by side in a simulated tower.

The hangar houses a fleet of aircraft used for experimental testing of system such as TCAS and ACAS, or "Aircraft Collision Avoidance System". The fleet includes a Bombardier jet, 2 Convair turbo prop planes, a Sikorsky helicopter, and a Piper Chieftain.

These aircraft are equipped with special hardware, and used in tests to gather data.

Here at the fuels lab, piston engines are custom equipped in house with precision sensors to test different fuels such as leaded, un-leaded, ethanol blends, and E-85 ethanol.

Strict specification must be met because the aviation industry has the highest fuel standards.

The wind tunnel is powered by two jet engines, and used the venturi effect to bring speeds up to Mach .9 or 700 MPH.

Here, the center tests sections of wings, and signs that will be used around the runway, to test their structural integrity.

This is a patent test on the CO2 fire extinguisher expansion nozzle. It helped to extinguish the fire without disbursing it like other designs. TT works to patent inventions that mutually benefit the inventor, FAA, and flying public.

The aircraft industry has considered changing seats in planes from aluminum to magnesium for weight reduction. Here we can see magnesium alloys being fire tested with JP-8 jet fuel. Magnesium ignites at 1200 degrees Fahrenheit, and can burn up to 5600 degrees Fahrenheit. These higher fire risks need to be considered when comparing weight savings to its inert, aluminum alternative.

Fire testing facilities also examine how fires originate and propagate through aircraft. The incentive for research in this field is for better prevention, extinguishing methods and strategies for safety and asset loss prevention. It is important to know how much time the pilot has to land before the cockpit fills with smoke and they are not able to read the gauges and fly the plane.

Here's a fire test with lithium batteries and various other batteries. Lithium is very reactive and burns quickly. Within 16 minutes lithium batteries have filled the cockpit completely with smoke, whereas the various other batteries have left the cockpit smoke free thus far.