HIGHLIGHTS OF THERMAL ACOUSTIC INSULATION TASK GROUP MEETING

Held at

BOEING COMMERCIAL AIRPLANE GROUP, EVERETT, WASHINGTON

MARCH 1, 1999

Pat Cahill described the thermal acoustic insulation tests conducted at the FAA Technical Center Fire Safety Section to date. She provided a photo and an explanation of the "Jelly Roll" experiment she conducted and her reasons for doing that experiment. Copies of the viewgraphs from Pat's presentation are attached.

The Task Group members viewed some video of several of the experimental tests that were conducted and discussed the results.

Jim Peterson (Boeing) gave a description of Boeing's version of the "Jelly Roll" experiment.

The group discussed the diameter of the center of the "Jelly Roll" tube and if that made a difference in the air flow velocity through the tube.

The FAA Technical Center Fire Safety Section ran OSU tests on some of the films types. Boeing plans to do this as well.

Schneller provided some of its glass fabric coating material for some tests at the FAATC. OSU work was also conducted on this material.

Jeff Gardlin (FAA Northwest Mountain Region) explained that the tests the FAATC is conducting are being designed (modeled) after realistic thermal acoustic insulation installation configurations.

Darren Dodd presented results of burnthrough work done by Darchem. The tests involved systems issues as part of materials burnthrough.

Phase I – Darchem investigated overlap.
Phase II – Use of fasteners representative of those used in the field. Actual components were used to look at the methods of attachment.

Darchem's work is designed to be an investigation of installation aspects working with the CAA (U.K.) and the FAA.

THERMAL/ACOUSTICAL INSULATION

FACTS

- PLAIN PET, METALLIZED PVF, AND POLYIMIDE (FILMS AND SANDWICH COMBINATIONS) PASSED VERTICAL BUNSEN BURNER TESTING AND COTTON SWAB TESTING WHEN TESTED WITH 0.42 POUNDS PER CUBIC FOOT (PCF) FIBERGLASS AND FILMS SUPPLIED BY MANUFACTURERS AT THAT TIME –1996 (ROUND ROBIN TESTING)

- A CERTAIN METALLIZED PET FAILS BOTH VERTICAL AND COTTON SWAB TESTING. IT IS ALSO EASILY IGNITED ELECTRICALLY AND PROPAGATES FLAME CONSISTENTLY

- A CERTAIN PLAIN PET FILM/FIBERGLASS ASSEMBLY (COMPRESSED) FAILED 12 – SECOND VERTICAL FLAMMABILITY TESTING (BURN LENGTH AND AFTERFLAME) – WITH 0.34 AND 0.6 PCF FIBERGLASS – THE 0.42 PCF SAMPLE PASSED (~7 INCH BURN LENGTH)

- PLAIN PET FILM WILL BURN AND PROPAGATE FLAME UNDER CERTAIN CONDITIONS : CONFIGURATION OF THE TEST SAMPLE IS A CRITICAL PARAMETER

CONFIGURATIONS

PLAIN PET FILM

45-DEGREE

- IGNITION AND PROPAGATION OF FIRE ON A HEAVIER WEIGHT PET FILM/0.34 PCF FIBERGLASS AT THIS ANGLE APPEARS TO BE CONSISTENT (TESTING TO DATE).

- HEAVIER PET FILM APPEARS TO “STICK” TO THE 0.34 PCF FIBERGLASS MORE SO THAN OTHER DENSITIES.

- THE LIGHTER WEIGHT PET FILM APPEARS TO SHRINK AWAY QUICKER THEN THE HEAVIER WEIGHT FILM AND DOES NOT APPEAR TO PROPAGATE FLAMING TO THE SAME EXTENT.

“JELLY ROLL”

- PROPAGATION OF FIRE ON PET FILM IN THIS CONFIGURATION APPEARS TO BE REPRODUCIBLE. TESTING BAS BEEN PERFORMED BOTH WITH AND WITHOUT A CRUMPLED PIECE OF PET INSIDE THE ROLL FOR IGNITION PURPOSES.

- BOTH DENSITY OF FIBERGLASS AND WEIGHT OF FILM DO NOT APPEAR TO INFLUENCE FLAME PROPAGATION IN THIS CONFIGURATION.

- A “BLOCKING LAYER” OVER THE FIBERGLASS DID NOT PREVENT FLAME SPREAD IN THIS CONFIGURATION.