Radiant Panel Work Update

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Radiant Panel Work Update

- There are 23 labs/companies in the United States and Europe that perform the Radiant Panel test
- All labs in the United States that run the radiant panel test have been visited by FAA personnel and were found to be acceptable for 25.856(a) testing
- Currently, there are 4 labs in Europe that have or will be visited by their local authority to demonstrate 25.856(a) acceptability.
- Additional European Labs will be joining the flock soon.

Radiant Panel Work Update

- Thermal acoustical insulation materials and components that must meet CFR 25.856(a):
  - Insulation batts (film/fiberglass)
  - Hook and loop
  - Tape
  - Damping systems
  - Foams, felt, silicone-impregnated materials, etc. used as insulation

Radiant Panel Work Update

- The FAA has not been contacted by *anyone* expressing any problems with their equipment or concerns regarding test operation.
- As a result, we are assuming all is well.
- If this *is not* the case, please do not hesitate to contact the FAA.

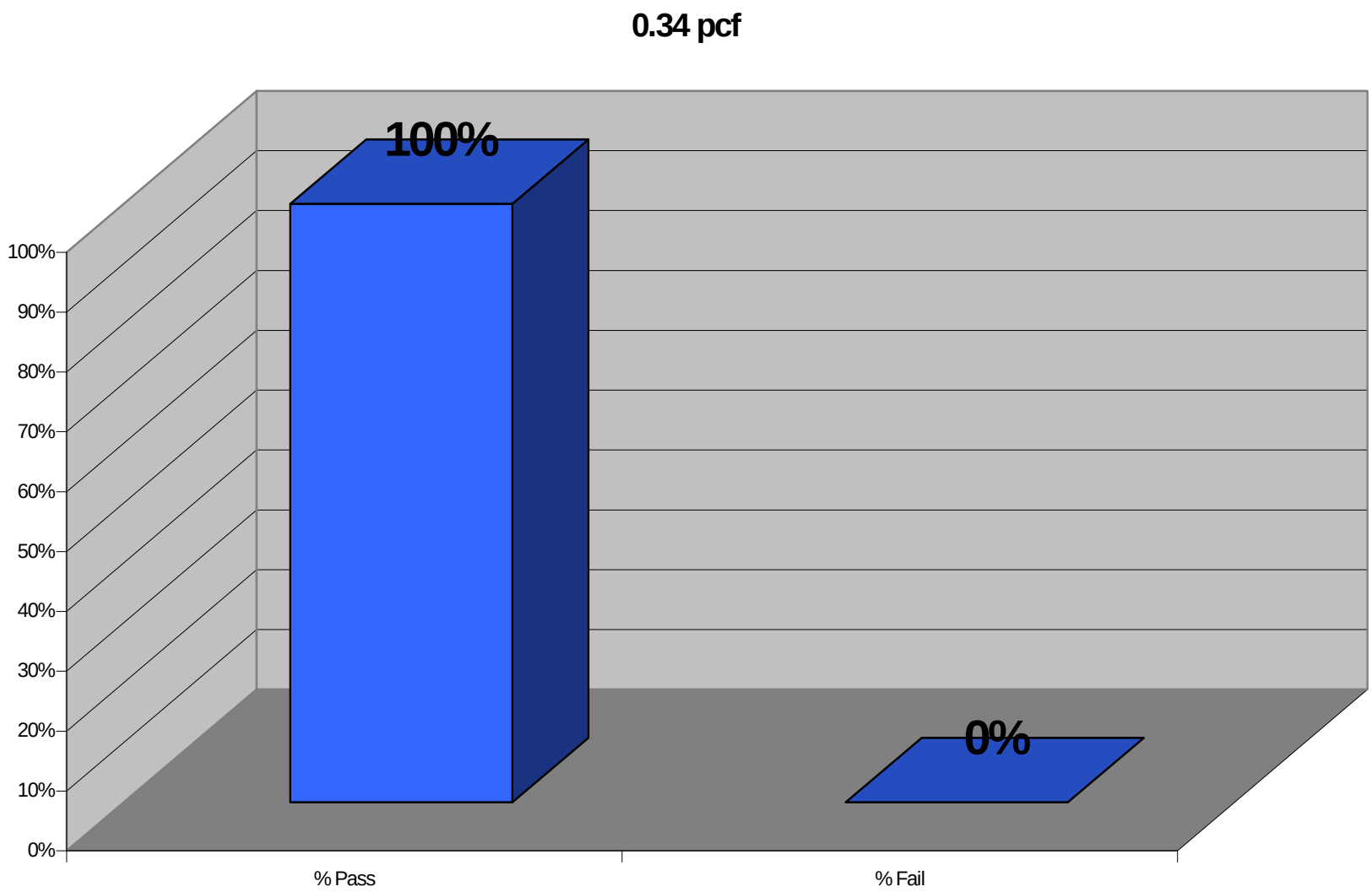
Radiant Panel Work Update

- Testing was performed to demonstrate repeatability on various densities of fiberglass, (which can be considered "baseline" material) in the FAA radiant panel test chamber.
- Four Test Sequences were conducted with four different densities of fiberglass:

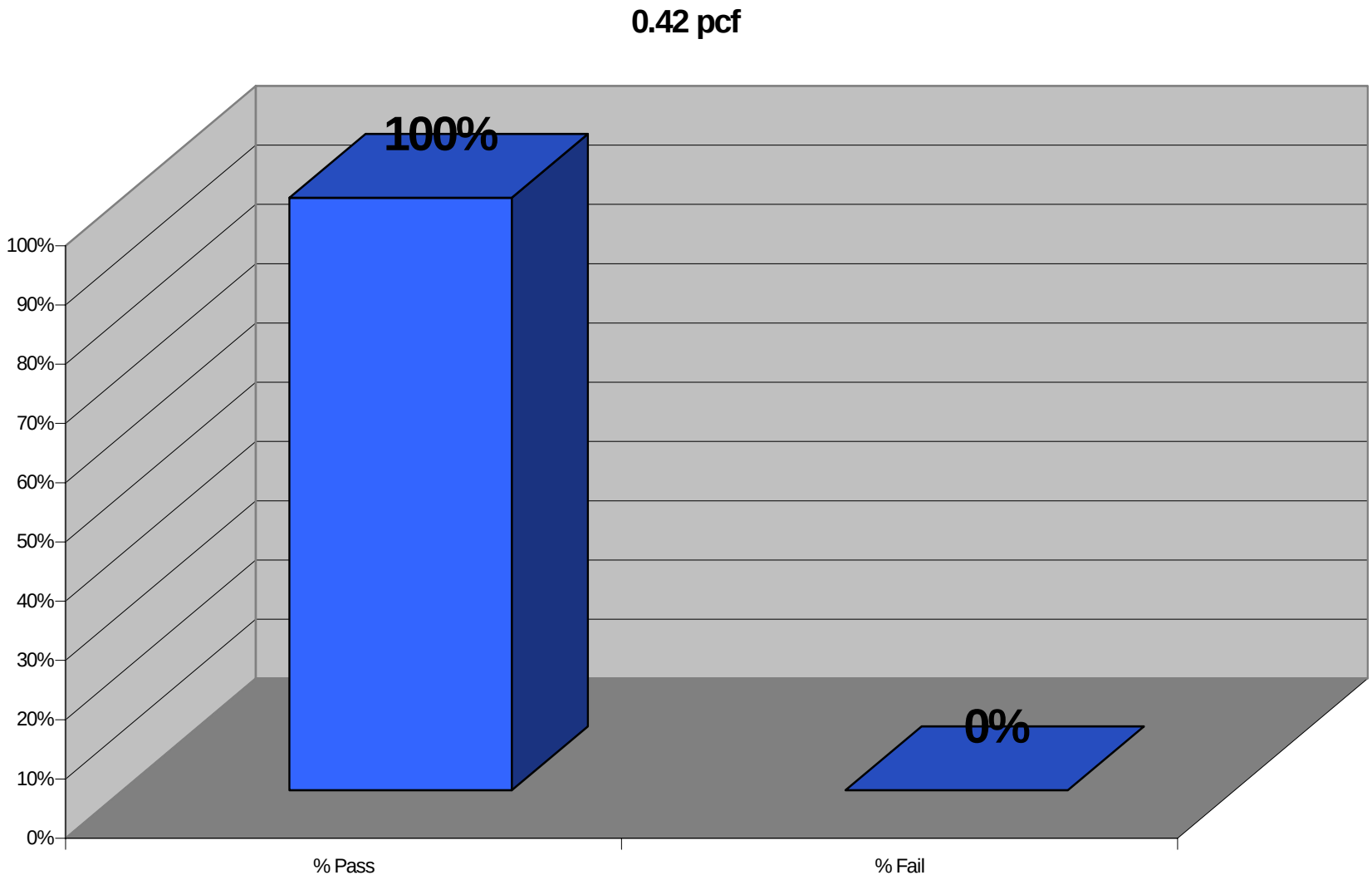
0.34 pcf	**0.60 pcf**
0.42 pcf	**1.00 pcf**

- Each Test Sequence consisted of six samples.

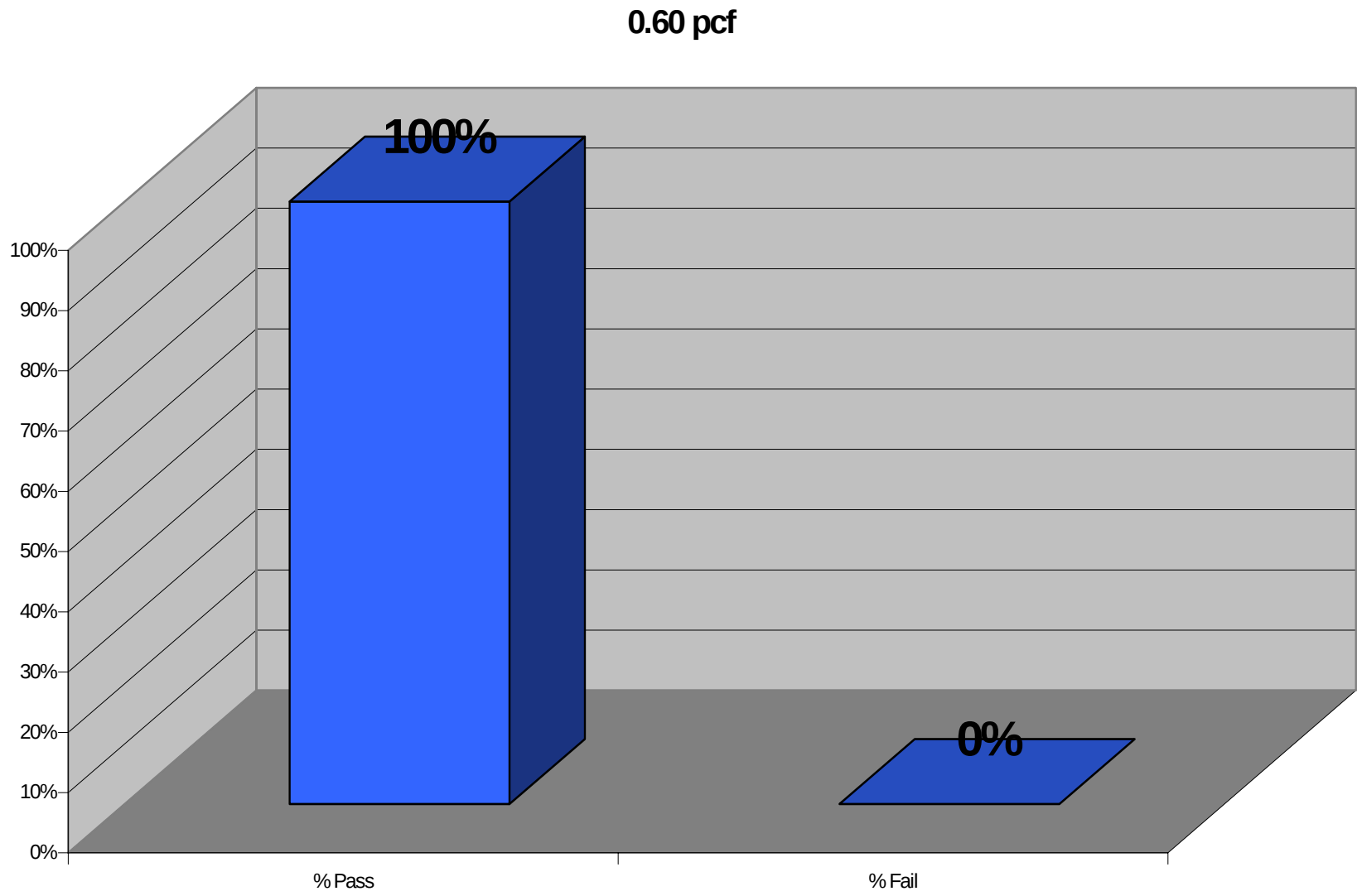
Test Sequence #1



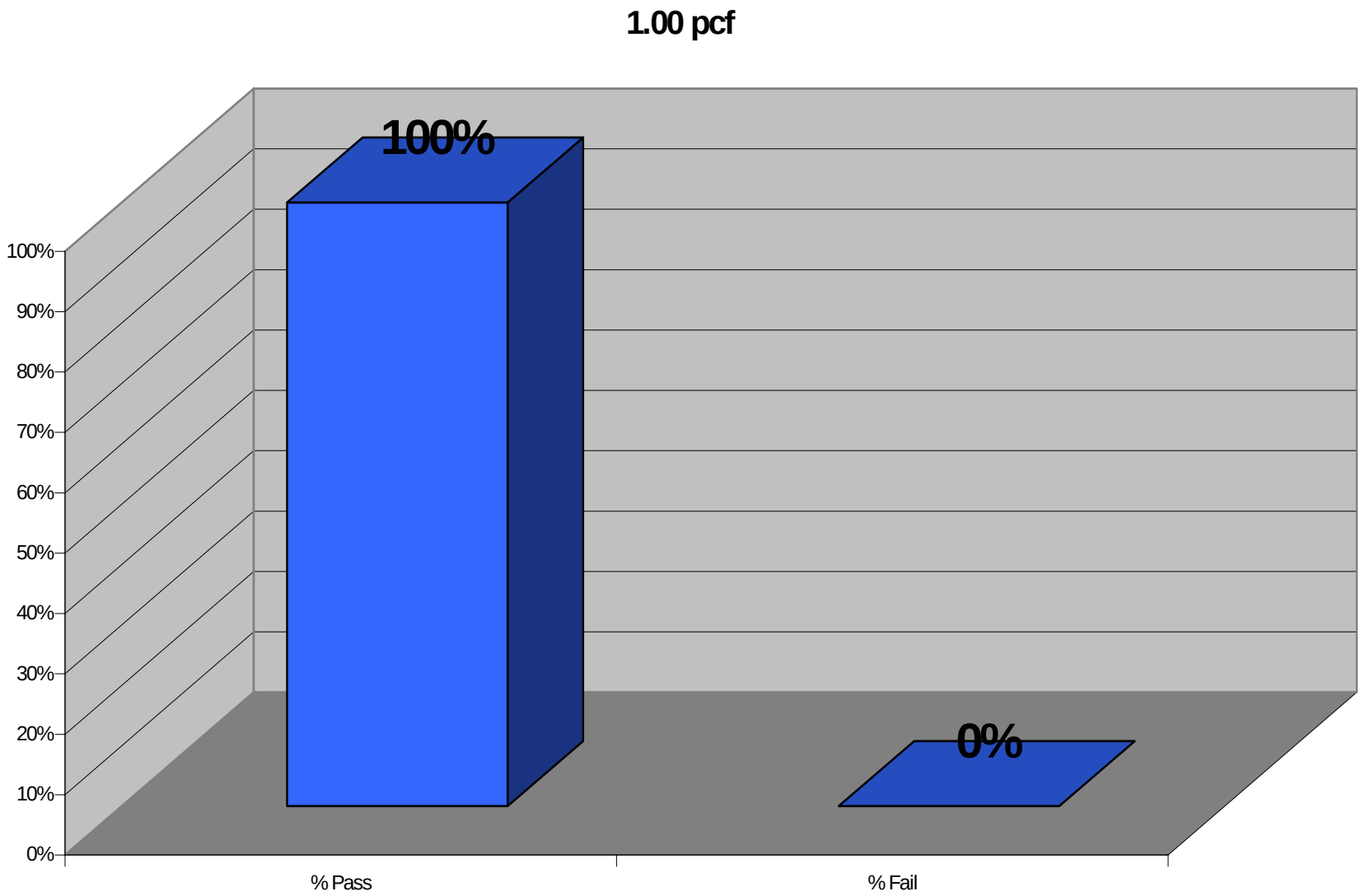
Test Sequence #2



Test Sequence #3



Test Sequence #4



Repeatability Testing Conclusion

- The results of this repeatability check are identical to the repeatability check conducted 6 months ago.

Questions about Testing Thin Materials

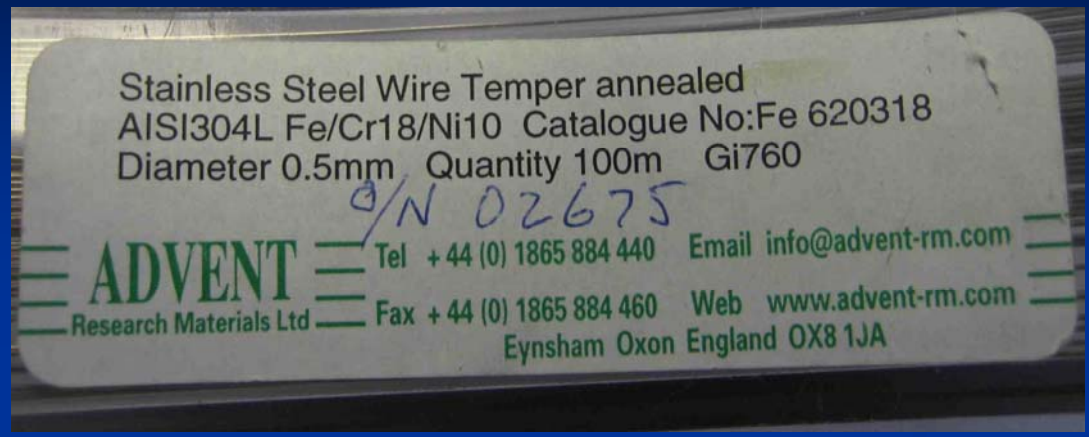
- Question posed by a Radiant Panel Test Chamber Manufacturer in the UK
- "How do you restrain thin materials?"
- Manufacturer did some experimentation on their own.

Sample without Restraint

Restraining Wires Added to Frame

Sample after Testing with Wire Restraint

Frame and Wire Specification



Frame will be painted black.

Video: 3mm Sample with Wire Frame

Video: 1 Inch Sample with Wire Frame

Restraining Wires Comments

- Manufacturer states that the wires did not interfere with the propane flame and that both samples passed.
- The FAA Tech Center will investigate the use of restraining wires for thin materials.

Round Robin 9

- *It's that time again!*
- Round Robin 9 will consist of samples with tape and there will be four or five samples per lab.
- We are planning to begin shipping samples in late April.

Break Time

Worldwide Aircraft Seat Round Robin

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Aircraft Seats

World Wide Round Robin Testing

- 8 labs in the United States have completed testing and reported data:

Boeing Seattle	Accufleet
Starr Aircraft Products	Custom Products
Flame Out	Skandia
Govmark	Chestnut Ridge

- Samples have been shipped to the following organizations in Europe, Asia, and South America:

Lantal	A. Muirhead & Sons	CTA (Spain)
CEAT	Vauth & Sohn Gmbtt & Co	Koito Industries
CAAC (China)	Metzeler-Schaum	Siemens
Bayer	Embraer	Sicma Aero
	Bodycote	

Aircraft Seats

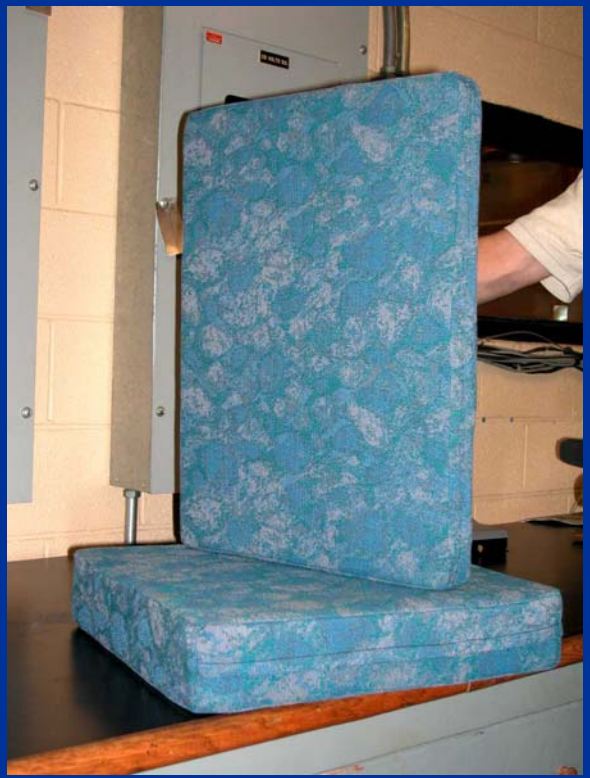
World Wide Round Robin Testing

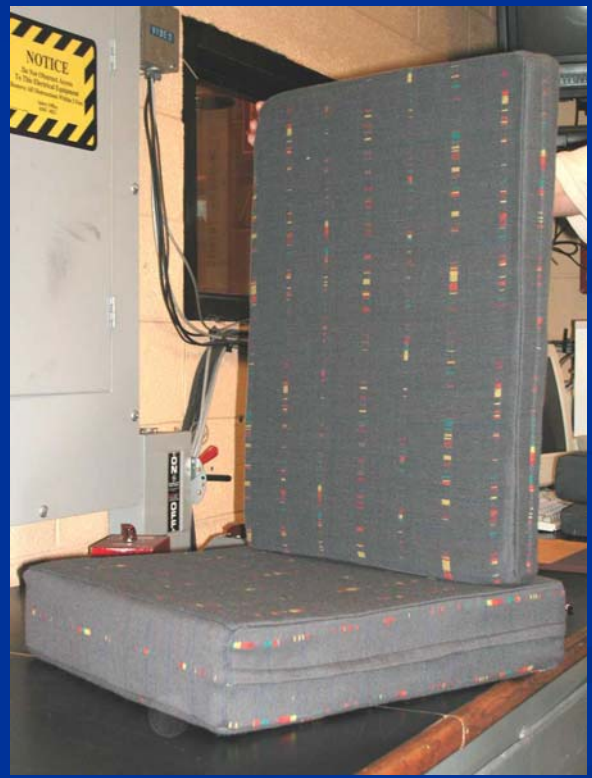
- 3 Labs have reported data and have been added to the tabulated data.
- For review, the pictures of the seat cushions distributed for testing follow …

Aircraft Seats

World Wide Round Robin Testing

Test Samples





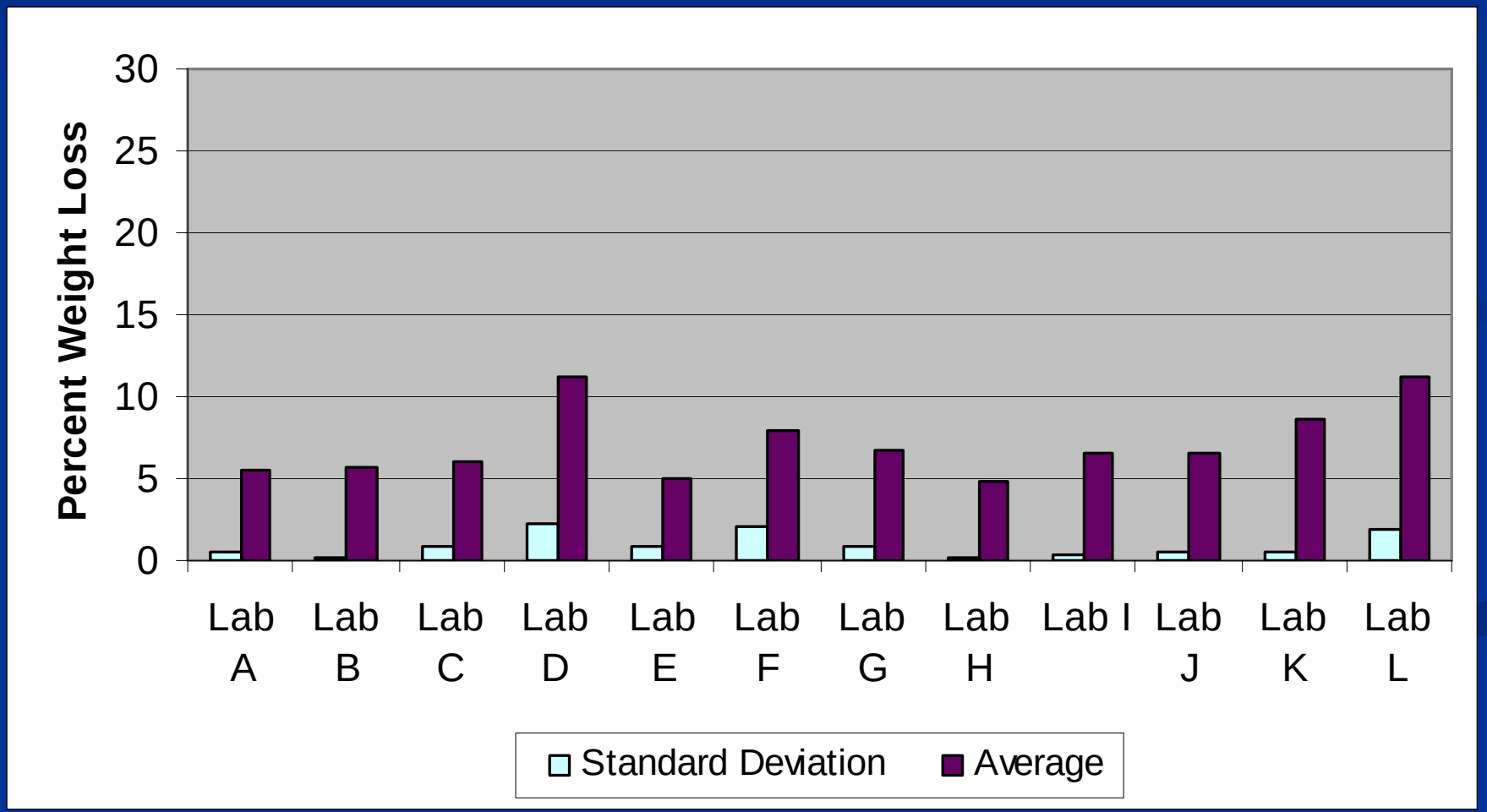
Aircraft Seats
World Wide Round Robin Testing

- Testing is complete in the US
- Testing has started outside the US and we anticipate it will be completed by early May 2007.
- Data being presented is the Average Percent Weight Loss and it's Standard Deviation for each Lab.
- Labs J, K, and L were the most recent labs to complete testing and report data.

Aircraft Seats

World Wide Round Robin Testing

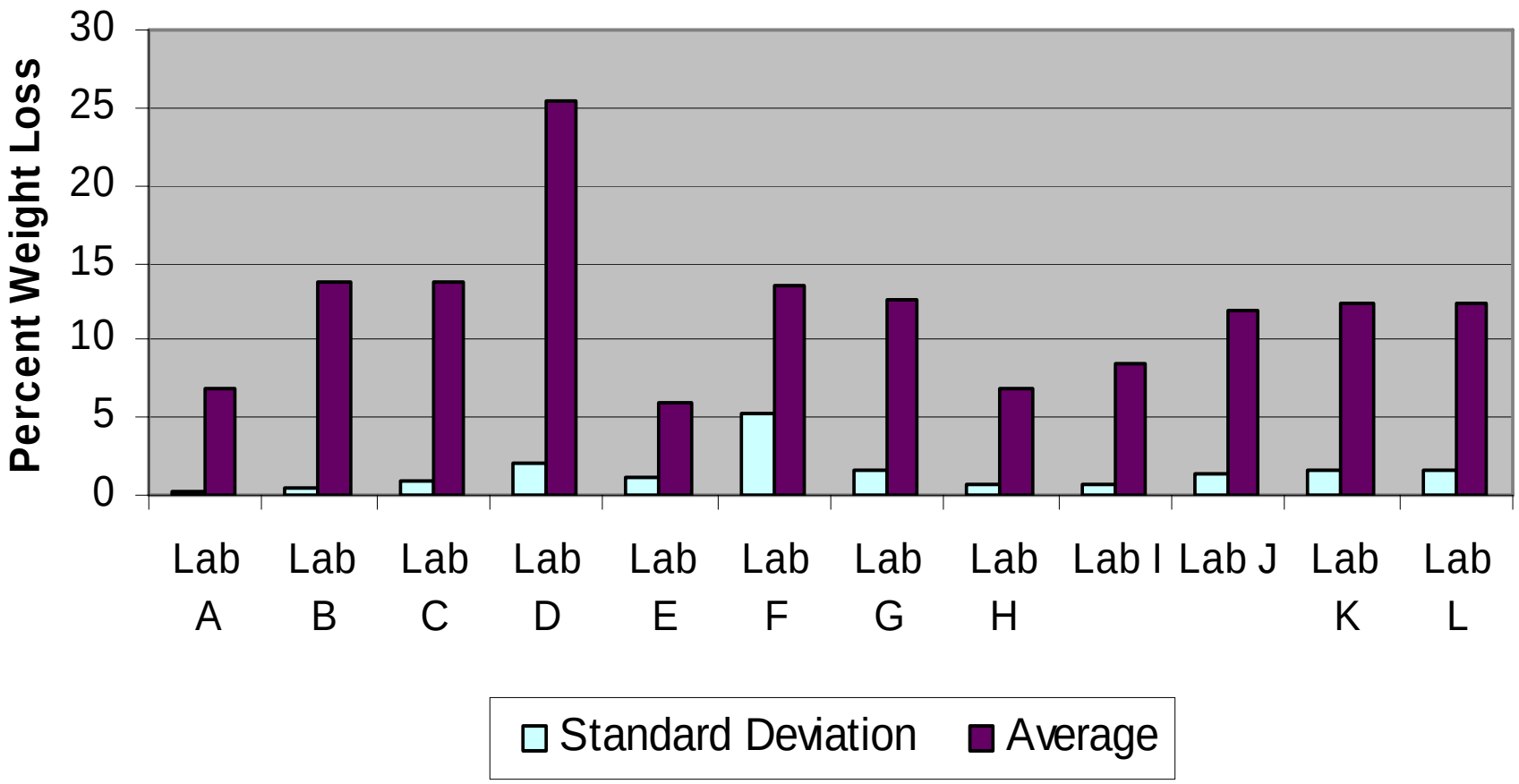
Fire Hardened Foam 1



Aircraft Seats

World Wide Round Robin Testing

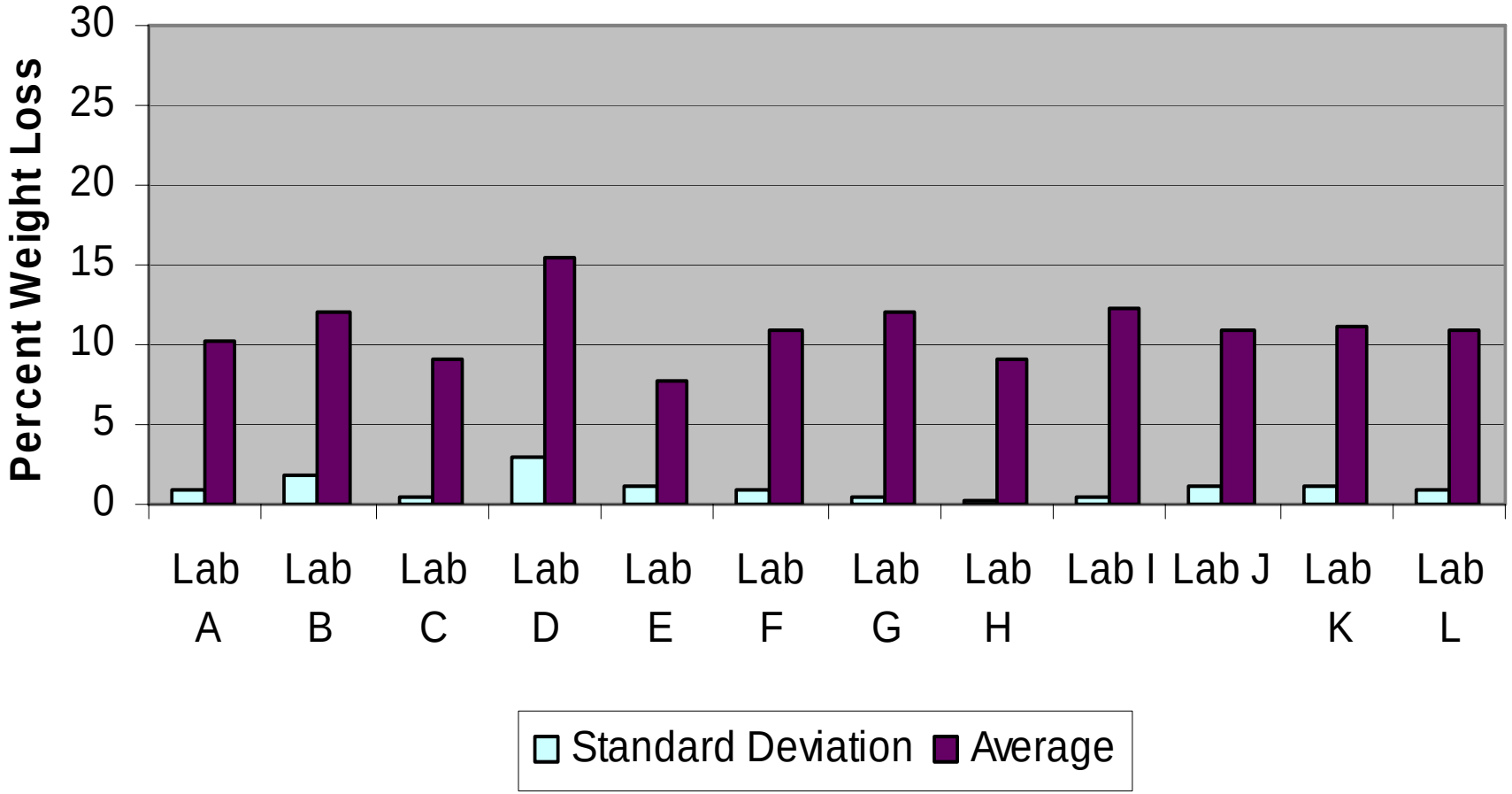
Fire Blocking Layer



Aircraft Seats

World Wide Round Robin Testing

Fire Hardened Foam 2



Aircraft Seats
World Wide Round Robin Testing

- Data from the US labs has been presented before, and the full report should be issued by April 2007.
- For Labs J, K, and L it appears that repeatability within each lab is consistent.
- Based on Percent Weight Loss, all samples failed in Lab L.
- All data will be reported, tabulated, and presented at the Triennial Conference in November 2007 in Atlantic City.

Seat Testing with the Sonic Burner

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Seat Testing with the Sonic Burner

- Began evaluating the Sonic Burner as a replacement for the Park Oil Burner for Aircraft Seat Testing.
- Initial work has included calibration of both Airflow and Fuel Flow.

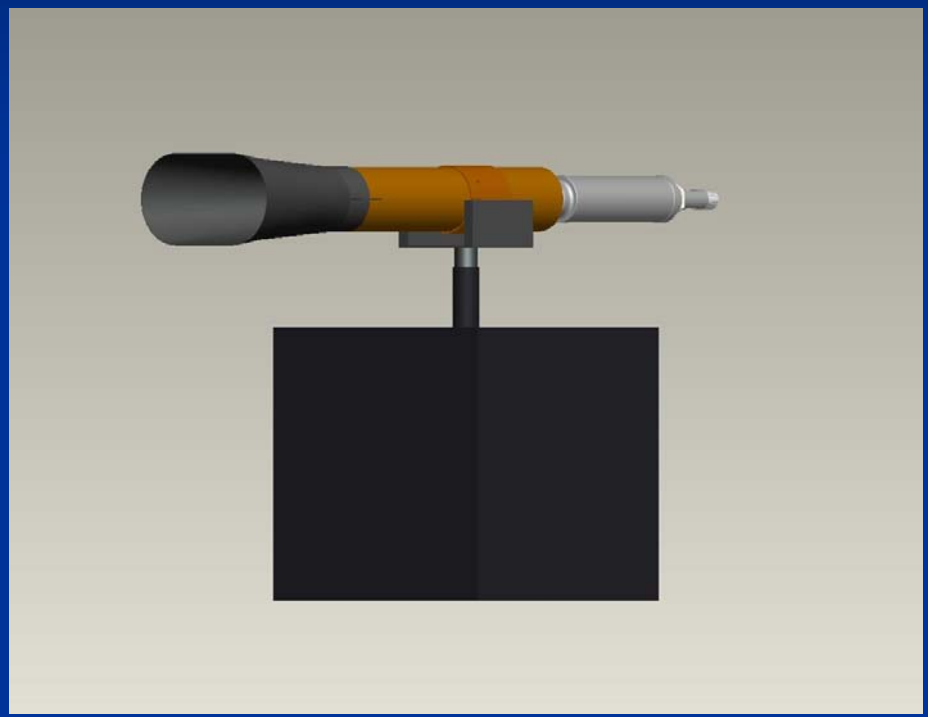
Airflow

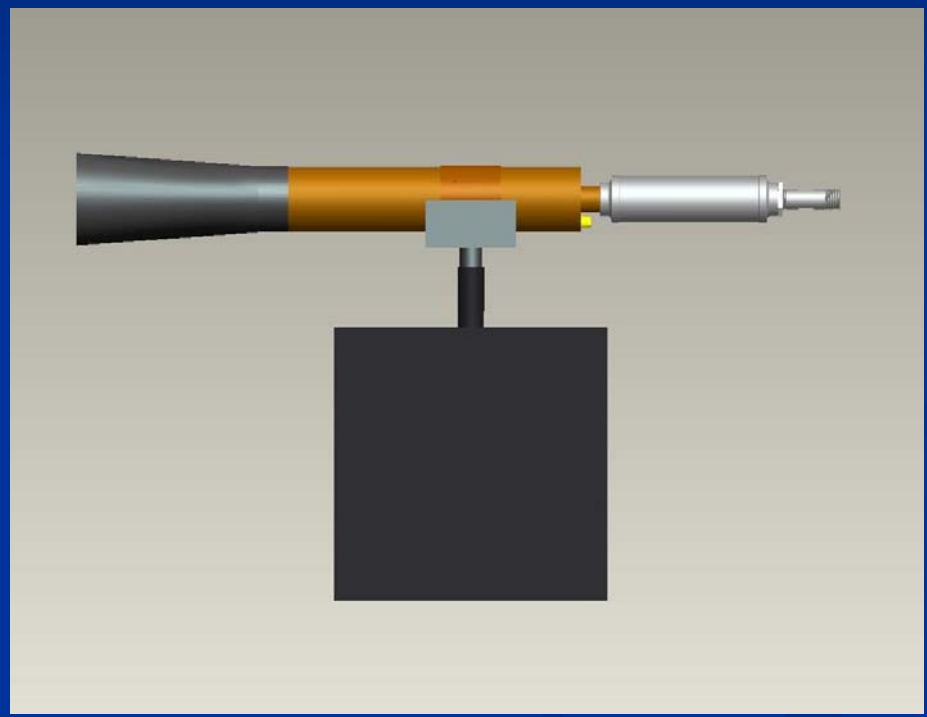
- The inlet Airflow for the Park Oil Burner is approximately 1,821 fpm (per the handbook).
- Using the Sonic Burner, we must know the inlet and outlet airflow.
- Measuring the Exit velocity of the Park Oil Burner at 1,821 fpm inlet and established outlet airflow of 1,085 fpm (measured with the Omega HH30 Anemometer) and adjusted Sonic Burner accordingly.

Fuel Flow

- A Monarch 2 GPH CC (Constant Capacity) Nozzle was installed in the fuel flow bench test stand.
- The Park Oil Burn was run at 100 PSI in order to attain the required 2 GPH.
- Early testing has determined that the Sonic Burner can be adjusted to deliver 2.06 GPH at 100 PSI.

Sonic Burner for Aircraft Seat Testing





Seat Testing with the Sonic Burner

Planned Activities

- Heatflux Calibration
- Thermocouple Calibration
- Conduct initial tests in Building 287 before full setup in Building 203.