

Radiant Panel Update

Presented to: International Aircraft Materials Fire
Test Working Group Meeting
By: Steven Rehn
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Federal Aviation
Administration



Introduction

- **Handbook update**
 - Reformatted to be like other chapters so changes can be made
- **New Rule**
- **New Advisory Circular**



Handbook Update

- Reformatted and uploaded to FAA Fire Safety website on June 20, 2017
- Same contents as old handbook
- Can now be updated further

Chapter 23

Test Method to Determine the Flammability and Flame Propagation Characteristics of Thermal/Acoustic Insulation Materials

23.1 Scope

23.1.1 Applicability

Use this test method to evaluate the flammability and flame propagation characteristics of thermal/acoustic insulation when exposed to both a radiant heat source and a flame.

23.2 Definitions

23.2.1 Flame Propagation

The furthest distance of the propagation of visible flame towards the far end of the test specimen, measured from the midpoint of the ignition source flame. Measure this distance after initially applying the ignition source and before all flame on the test specimen is extinguished. The measurement is not a determination of burn length made after the test.

23.2.2 Radiant Heat Source

An electric or air propane panel

23.2.3 Thermal/Acoustic Insulation

A material or system of materials used to provide thermal and/or acoustic protection. Examples include fiberglass or other batting material encapsulated by a film covering and foams.

23.2.4 Zero Point

The point of application of the pilot burner to the test specimen.

23.3 Apparatus

23.3.1 Radiant Panel Test Chamber

Conduct tests in a radiant panel test chamber (see figure 23-1). Place the test chamber under an exhaust hood to facilitate clearing the chamber of smoke after each test. The radiant panel test chamber must be an enclosure 55 inches (1397 mm) long by 19.5 inches (495 mm) deep by 28 (710 mm) to 30 inches (maximum) (762 mm) above the test specimen. Insulate the sides, ends, and top with a fibrous ceramic insulation, such as Kaowool M™ board. On the front side, provide a 52 by 12-inch (1321 by 305 mm) draft-free, high-temperature, glass

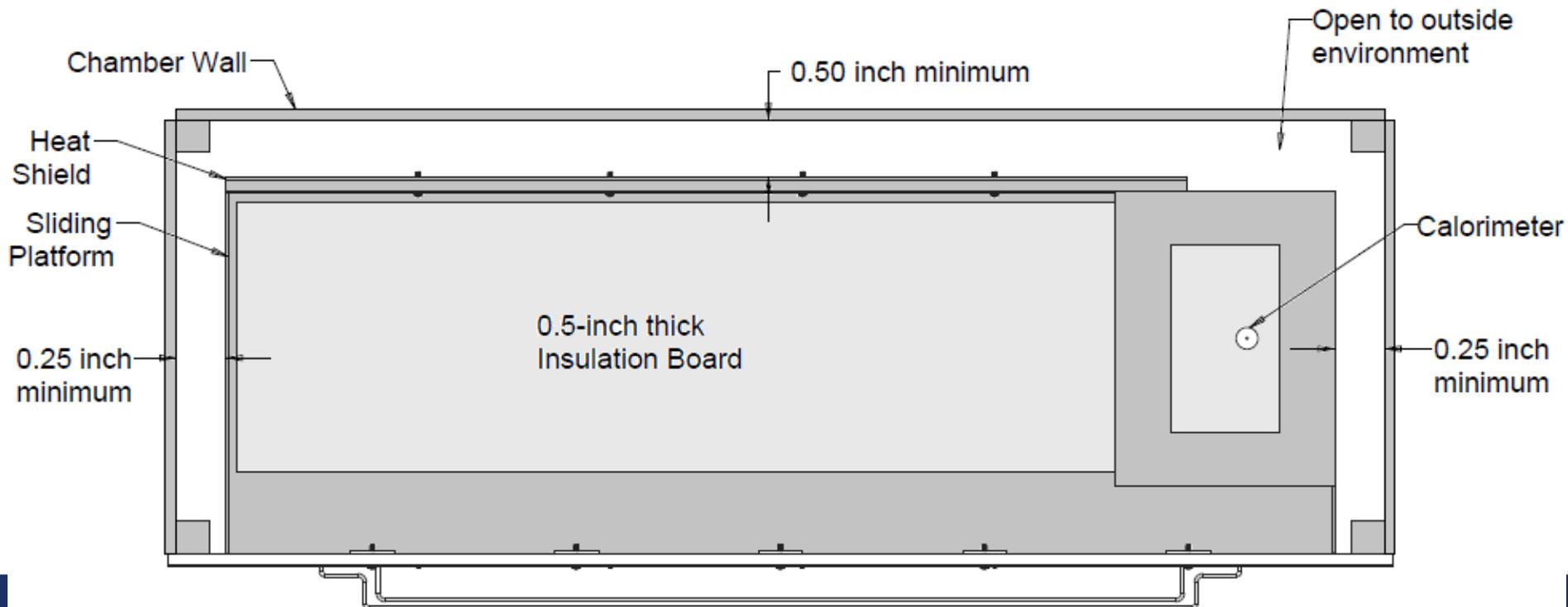
Proposed Handbook changes

- **Remove air-propane panel**
- **Replace Kaowool M with Superwool 607**
- **Remove voltage requirement**
 - Currently says you must use 208V 3-phase or 240V single phase
- **Reduce $\pm 5\%$ error on heat flux to $\pm 1\%$**
- **5 minute average on heat flux measurement**

New Rule Changes

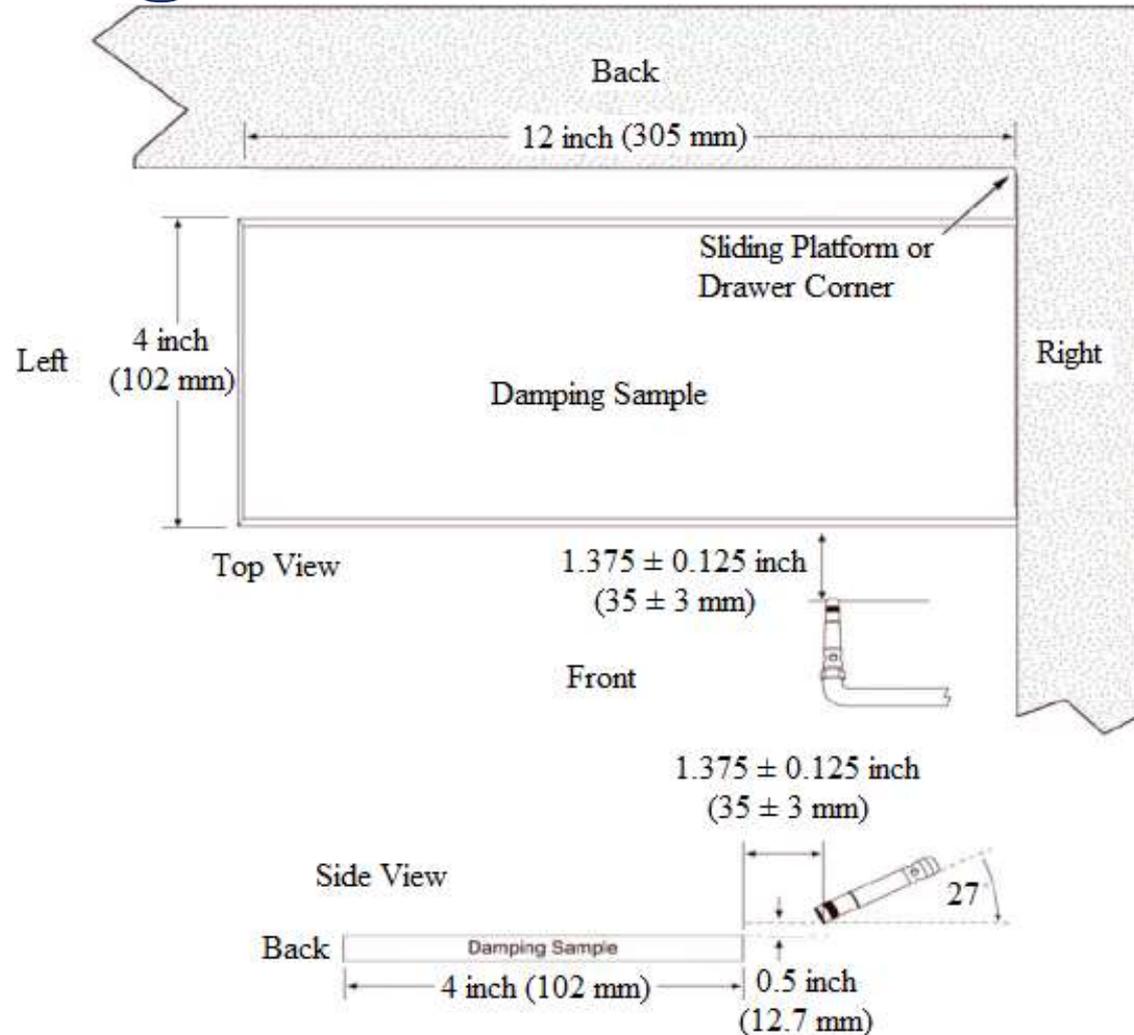
(Compared to last time we talked about it)

- No longer requiring longer drawer size
- Requiring that chamber can't be closed off around drawer (0.5" minimum opening behind drawer, 0.25" on sides)



New Rule Changes

- Changed damping systems to 4" x 12" sample size
- Previously 12" long and width sized to fit each machine



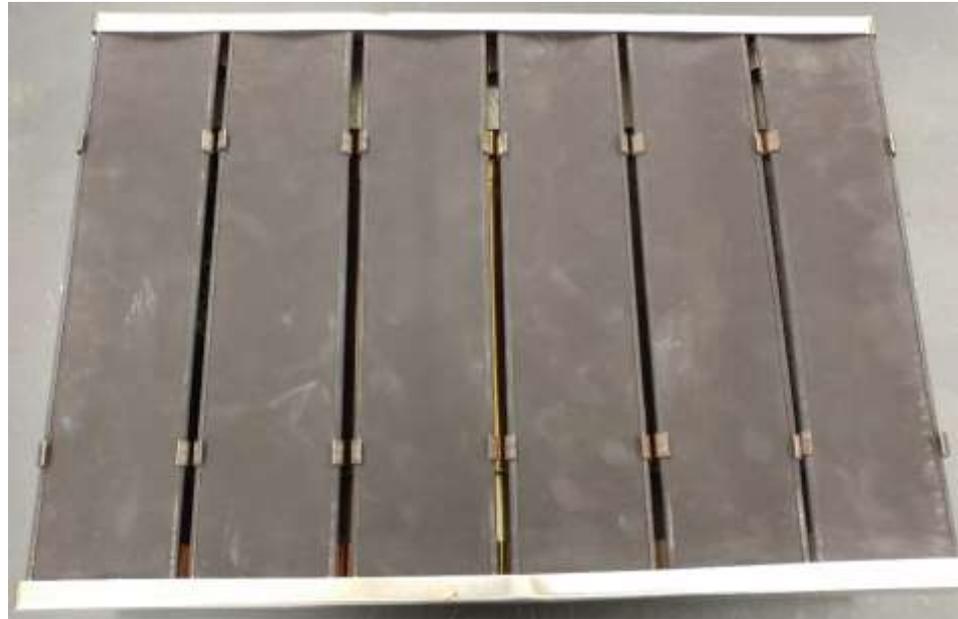
New Advisory Circular

- **Add a laser for flame propagation measurements?**
- **In the current draft:**
 - More guidance on material construction
 - More guidance on how combinations of core material, cover material, etc. need to be tested
- **Will talk about in task group meeting**

Radiant Panel Aging

- **Need to add guidance about when to replace electric panel**
- **Temperature set point steadily increases to obtain same heat flux as panel ages**
- **Biggest difference seems to be black paint on surface**

New Panel



Old Panel



Questions?

Contact:

Steven Rehn
Federal Aviation Administration
William J. Hughes Technical Center
Fire Safety Branch, Bldg. 203
Atlantic City Int'l Airport, NJ 08405
(609) 485-5587
steven.rehn@faa.gov

