

Waste Compartment Fire Containment MOCs



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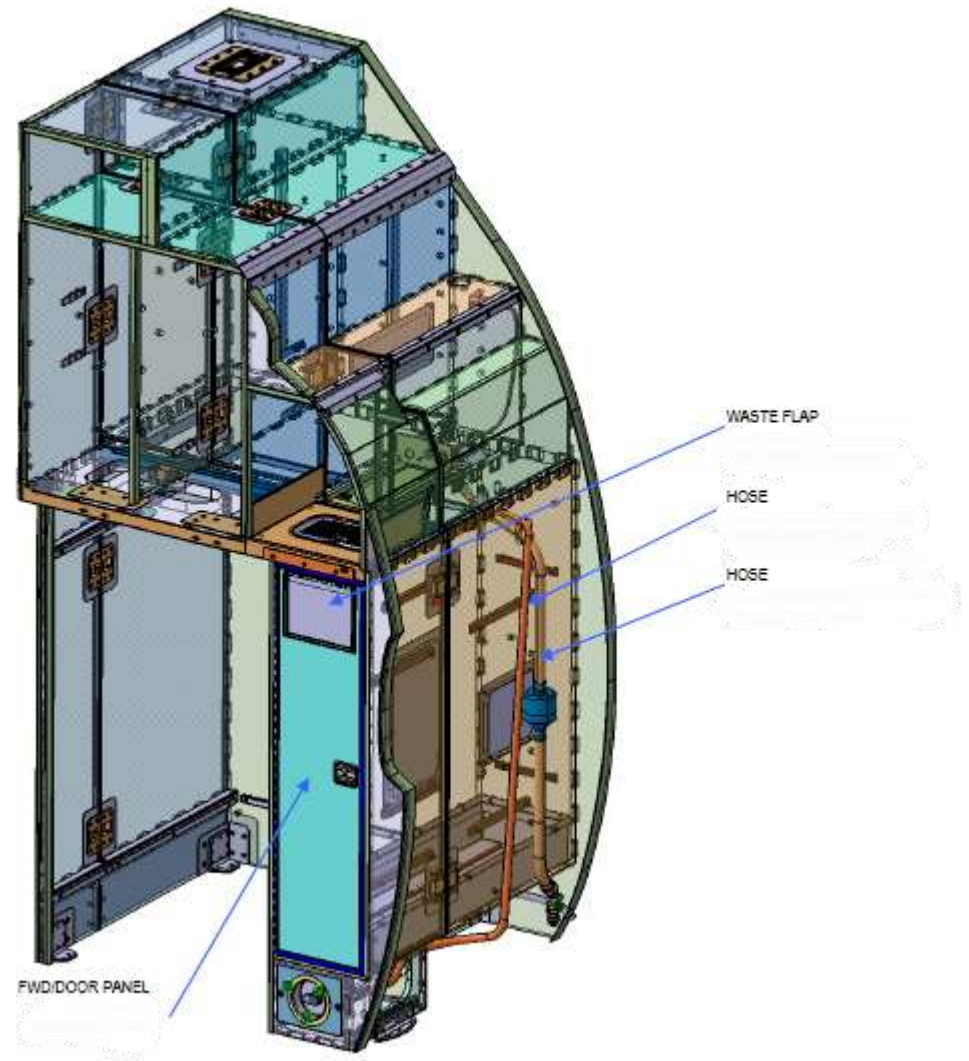
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IAMFTF- Atlantic City, NJ

Waste Compartment Fire Containment

14 CFR 25.853(h)

All Waste Compartments, Meal Trolleys & Waste Trolleys must be substantiated by Test or Analysis.

Industry/Regulators lack harmonized published methods of compliance (MOCs) to substantiate by analysis.



Waste Compartment Fire Containment

Our task group is assessing 26 proposed MOCs & design guidelines and 12 test standardization guidelines.

Only a few of these are specifically mentioned in FAA ACs

The others are straight forward often using aspects of the flammability Policy Statement.

Additionally several test aspects are not harmonized.



Waste Compartment Fire Containment- Test Parameters

What about smoke?

14 CFR 25.853(h) nor AC25-17A mentions nothing about smoke.

Only the Fire Test Handbook Chapter 10 par. 10.8.4 states: “Smoke will be contained within the waste compartment/container to the extent that the smoke level produced in the cabin does not create a hazardous condition or interfere with fire fighting procedures”

Regulators agree that smoke is not a requirement- just an observation. Some regulators believe smoke is a good indicator for a fire in a waste compartment.

Waste Compartment Fire Containment- Shimming gaps

Shim size and placement- not standardized.

Shimming doors/flaps w/ metal trim that overlaps the door surround panels vs. nested door/flap designs that overlap internal metal door support trims.

Do we shim designs with mechanically attached compressed seals that yield a 'zero' gap?

How to standardize?



Waste Compartment Fire Containment- 50% Flame Front and Temperature Spike

Test Requires a 50% flame front on the top surface of trash ignited before closing the compartment.

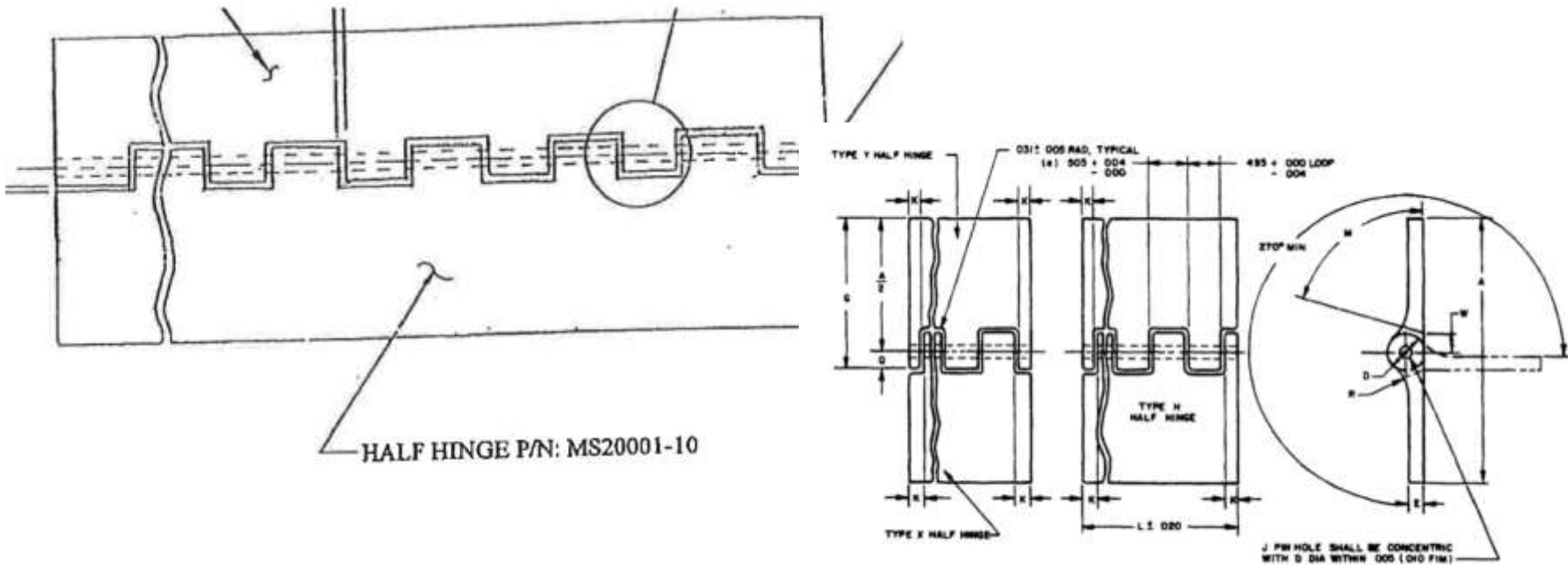
What to do if the 50% requirement is met but not centered under the thermocouple? (The thermocouple graph may not show as prominent of a temperature spike.)

How to standardize? **What is acceptable temperature spike for the test to be valid?**



Waste Compartment Fire Containment- Hinge gaps

Air gap through hinges- Can we create standard values for comparing designs using the same hinge?



Waste Compartment Fire Containment- Fire Load Discussion

How much to crumple waste?

The FAA Technical Center noted the degree of crumpling had a significant impact to lavatory waste compartment fire extinguisher testing.

Explore waste density options.

Explore visual guidelines.

OR...



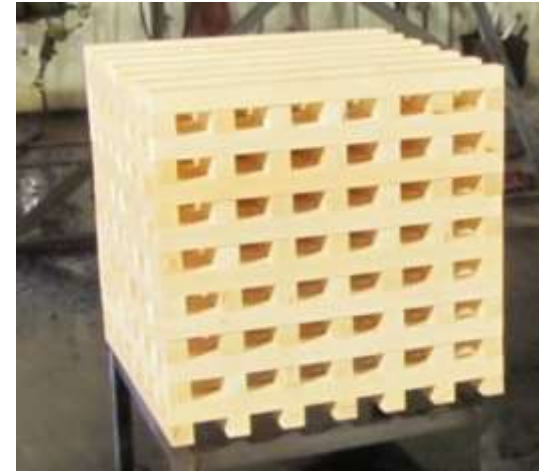
Waste Compartment Fire Containment- Fire Load Discussion

Explore alternate fire loads.

Gulfstream suggested for consideration the scalable wood crib fuel load specified per UL 711. A small pan of heptane is used to ignite.

And what about the foam block?

All work is committed to ensure that future fire loads are equivalent to those used today.



Waste Compartment Fire Containment Task Group Organization

MOCs, Similarity Guidelines and Test Method Guidelines are grouped by type and are being assigned to task group members to flesh out details.

Fire Containment Methods of Compliance (MOCs & Design Requirements)				
ITEM #	MOC Type	MOC Description	Actions	Comments
1	Approved	Greater compartment volume substantiates lesser volume. [FAA AC25-17A]		
2	Approved	Greater air gap substantiates lesser air gap. [FAA AC25-17A]		
3	Approved	Designs with a metal waste can: Testing without the waste can substantiates with waste can installed. [FAA AC25-17A, Appendix 8, par. 4.1a.]. An agreed upon corollary, testing a compartment with a non-metallic waste bin can substantiate a waste compartment with a metal waste bin (with the same or lesser volume).	Installers may add a metallic container to the compartment if the original design was tested without a container. Additionally, installers may substitute a metallic container, of equal or less volume, in a compartment if the original design was tested using a nonmetallic container- AA	Would also need to verify the fit of a replacement container would ensure trash can not fall between the container and compartment walls. Scott <i>Can we simplify to be a material substitution metal for non-metal container?- Jeff G.</i>
4	PS Related	Thinner core panels substantiate thicker core panels (same materials) for the same application (sides ceilings, etc).	Scott / Tom (Boeing)	
5	PS Related	Less skin plies substantiate more skin plies (same material) for the same application (sides, ceilings, etc)	Scott / Tom (Boeing)	Door panels are more critical than compartment panels for thickness, skin plies, etc.- Tom (Boeing)
6	PS Related	Nomex and Kevlar core are interchangeable and can substantiate aluminum core.		
7	PS Related	Thinner aluminum skins substantiates thicker aluminum skins.		
8	PS Related	Waste door with edge cast can substantiate waste door with aluminum edge trim.		<i>non-metallic substantiates metallic feature.</i>
9	PS Related	How to substantiate a change in panel skin adhesive films? What about structural joint adhesives? (no failures noted through mortise and Tennon joints.)		
10	PS Related	All material substitutions related to fire containment must also pass a 45-degree test.		Concur with the exception that there may be other considerations such as panel stiffness that also need to be taken into account. - Gulfstream

Waste Compartment Fire Containment Task Group Short Term Request

Tim is asking our task group to review Chapter 10 of the Fire Test Handbook and make recommendations to support the imminent release of the new NPRM that will include a new Fire Test Handbook.



Purpose of the Task Group

Harmonize and publish industry and regulator accepted 25.853(h) Similarity requirements & MOCs for waste compartments and galley trolley carts.

Develop new MOCs as needed.

Discuss test set up and test parameters- harmonize as necessary.

