

FAA/EASA/Industry Composite Damage Tolerance and Maintenance Workshop

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Federal Aviation
Administration



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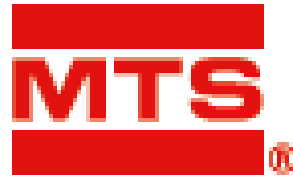


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Ongoing Composite Safety & Certification Initiatives*

Objectives

- 1) Work with industry, other government agencies, and academia to ensure safe and efficient deployment of composite technologies used in existing and future aircraft
- 2) Update policies, advisory circulars, training, and detailed background used to support standardized composite practices

** Efforts started in 1999 to address issues associated with increasing composite applications*

Technical Thrust Areas

Advancements depend on close integration between areas

Material Control, Standardization
and Shared Databases

Structural Substantiation

- Advances in analysis & test building blocks
- Statistical significance
- Environmental effects
- Manufacturing integration

FAA and NASA
R&D is currently
active in most
of these areas



NASA

Damage Tolerance and Maintenance Practices

- Critical defects (impact & mfg.)
- Bonded structure & repair issues
- Fatigue & damage considerations
- Life assessment (tests & analyses)
- Accelerated testing
- NDI damage metrics/service POD
- Equivalent levels of safety
- Training standards

Flammability & Crashworthiness

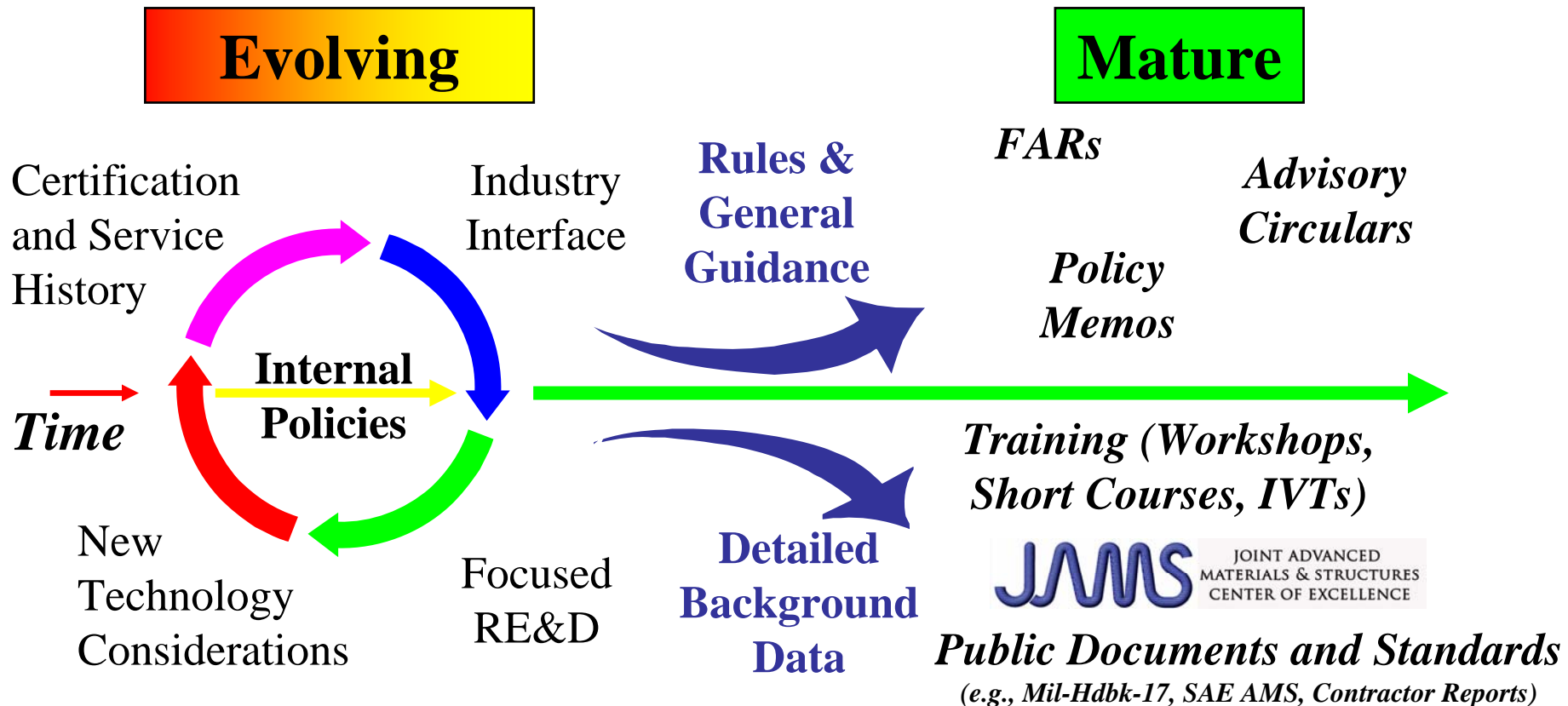
*Support to cabin
safety research groups*

Bonded Joint
Processing Issues

Advanced Material
Forms and
Processes

Significant progress, which has relevance to all aircraft products, has been gained to date

FAA Approach to Composite Safety and Certification Initiatives



FAA Composite Team Members

Represented Group	Team Member Name	FAA Organization Number & Routing
FAA Tech. Center	<i>Curtis Davies</i>	<i>AAR-450 (FAA Technical Center)</i>
	TBD	AAR-450 (FAA Technical Center)
International	John Masters	AEU-100 (Brussels Aircraft Certification Staff)
Directorates	<i>Lester Cheng</i>	<i>ACE-111 (Small Airplane Directorate)</i>
	Bob Stegeman	ACE-111 (Small Airplane Directorate)
	Charles Harrison	ASW-110 (Rotorcraft Directorate)
	Ian Won	ANM-115 (Transport Airplane Directorate)
	Jay Turnberg	ANE-110 (Engine & Propeller Directorate)
DC Certification	James Kabbara	AIR-120 (Aircraft Standards Division)
Flight Standards	<i>Rusty Jones</i>	<i>AFS-309 (Aircraft Maintenance Division)</i>
	<i>Gary Goodwin</i>	<i>ANM-200 (Seattle AEG)</i>
ACOs, MIDOs, & CMOs	Roger Caldwell	ANM-100D (Denver ACO)
	Mark Freisthler	ANM-120S (Seattle ACO)
	Ed Garino	ACE-117A (Atlanta ACO)
	Fred Guerin	ANM-120L (Los Angeles ACO)
	Angie Kostopoulos	ACE-116C (Chicago ACO)
	David Ostrodka	ACE-118W (Wichita ACO)
	Richard Noll	ANE-150 (Boston ACO)
	John Harding	ANM-108B (Seattle CMO)
David Swartz	ACE-115N (Anchorage ACO)	
CS&TA	<i>Larry Ilcewicz</i>	<i>ANM-115N (CS&TA, Composites)</i>

Those attending the workshop are highlighted in blue italics. Also attending the workshop from the FAA is:

Scott Fung ANM-120S (Seattle ACO)

CSTA and STS Advisors:

Al Broz, Robert Eastin, John Howford, Terry Khaled, Steve Soltis, Dave Walen, Chip Queitzsch



Important Teammates

- **NASA has been a leader for composite applications**
 - Significant research support since 1970/1980s
 - AA587, A300-600 accident investigation
 - NCAMP support to material standardization
- **Partnerships with industry have been essential,**
e.g., CMH-17, SAE P-17, CACRC, ASTM, SAMPE, AGATE, SATS, RITA, SAS/IAB/AACE

~~NASA~~



Training
Databases
Standardization
Engineering guidelines



- **DOD and DARPA research**
- **EASA and other foreign research/standardization**



Discussion on Subject Areas

- **Friday Morning**
- **We will divide into four groups to allow better discussion on each subject area**
- **All participants are assigned a room.**
- **You have a colored strip on your badge this identifies you as member of a particular group and which room**
- **These discussions will be summarized when the workshop reconvenes.**

Breakout Session Designation



Damage Tolerance



Damage in Sandwich Construction



Repair Design and Process



Field Inspection and Repair QC

Logistics

- **Lunches will be served in the Restaurant**
- **Restrooms are down the hall from the room, directly across from the restaurant.**
- **All agenda times including break end times will be strictly enforced!!!**



Welcome and Thank You for Your Participation

