JAMS Adhesive Bonding
Joint Working Group

AMTAS Autumn 2010 Meeting
October 21, 2010

The Joint Advanced Materials and Structures Center of Excellence
• **Motivation and Objectives**
  – Form a working team to leverage the individual R&D tasks that will:
    ▪ Increase awareness of overall Adhesive Bonding R&D plan and knowledge base between the working group and community
    ▪ Provide an efficient means of using resources
    ▪ Provide commonality in specimen fabrication and testing
    ▪ Discuss technical, safety, and certification related issues in the structural adhesive bonding area
  – Include all JAMS adhesive bonding related projects
    ▪ Consider adding representative from CECAM for better visibility throughout that team

• **Plan**
  – Conduct monthly meetings to discuss progress and needs
    ▪ Tentatively first Thursday of the month, 10:00 Pacific/1:00 Eastern
    ▪ Telecon/Webex
  – Use common materials and manufacturing methods, where possible
  – Build on results of each others research to make greater progress than can be done individually
  – Report out on results of team
Adhesive Bonding Working Group: Projects

Certification of Bonded Structure:
- Define robust M&P methods
- Validate bond integrity and durability
- Relate to certification requirements

Composite Bond Integrity/Durability:
- Establish effects of contamination on long term durability of composite bonds
- Develop accurate and efficient durability test methods

Improved Comp Bonding Thru Surface Characterization:
- Process control as measured by surface features or materials condition
- Evaluate in-line QC methods to assess bond quality

Metal Bond Durability Standards:
- Improve ASTM standards for metal bond durability testing
- Develop guidance for exposure conditions and failure mode analysis
Robust Bonding M&P Collaborative Activity

Industry Needs and Requirements

- FAA / FARS and Requirements
  - Mfg limitations & constraints
  - Specifications
  - Materials used
  - Evaluation of robustness

- Univ of WA
  - Dev and eval feasibility of test methods
  - Evaluate effects of process parameters

- FIU / Miami
  - Evaluate effects of parameter changes
  - Define theory behind surface changes
  - Evaluate method limits
  - Durability test method development

- Univ of UT
  - Guidance on reqmts
  - Facilitize collaboration

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