

# Analytical Techniques Task Group

Amsterdam,  
Netherlands

May 9, 2007



Amsterdam 2007

# Task Group Charter

**Develop a guide of generally accepted stress analysis methods used for the design and evaluation of composite repairs for approval submission.**



Amsterdam 2007

# Initiatives

- To provide guide content that is generally agreed upon to be accurate and the best information within the scope of our charter.
- Education for a better understanding of composite repair design.



Amsterdam 2007

# Contents of Guide

## AIR 5946

### Design and Application of Composite Repairs for Thermosetting Composites

#### Introduction

#### Part I - Materials, Processes and Repair Design\*

#### Part II - Laminate Analysis\*

#### Part III - Joint Analysis\*



Amsterdam 2007

# Part I – Materials, Processes and Repair Design

- 1.0 Scope
- 2.0 Introduction
- 3.0 Materials and Forms
- 4.0 Repair Design Considerations
- 5.0 Fastened Composite Joints
- 6.0 References

Status: Updating for ballot.



Amsterdam 2007

# Part II - Laminate Analysis

- 7.0 Mechanical Property Development
- 8.0 Classical Laminated Plate Theory (CLPT) Analysis
- 9.0 Simplified Analysis Techniques

Status: Updating for ballot.



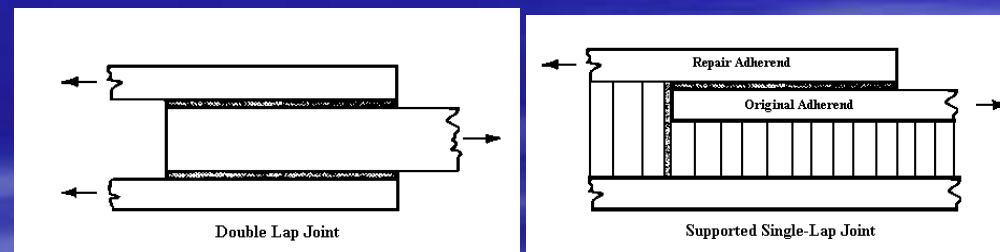
Amsterdam 2007

## Part III – Joint Analysis

10.0 Introduction to Adhesively Bonded Joints

11.0 Adhesive Characteristics

12.0 Adhesively Bonded Double-Lap/Supported Single-Lap Joint Analysis



13.0 Adhesively Bonded Single-Lap Discussion

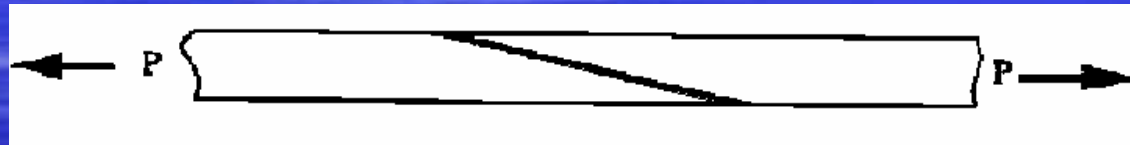




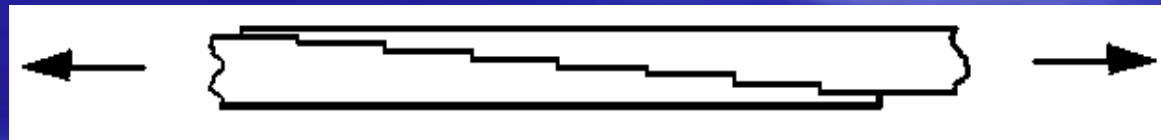
Amsterdam 2007

## Part III – Joint Analysis (cont.)

### 14.0 Adhesively Bonded Scarf Joint Analysis



### 15.0 Adhesively Bonded Stepped-Lap Discussion



### 16.0 Finite Element Method

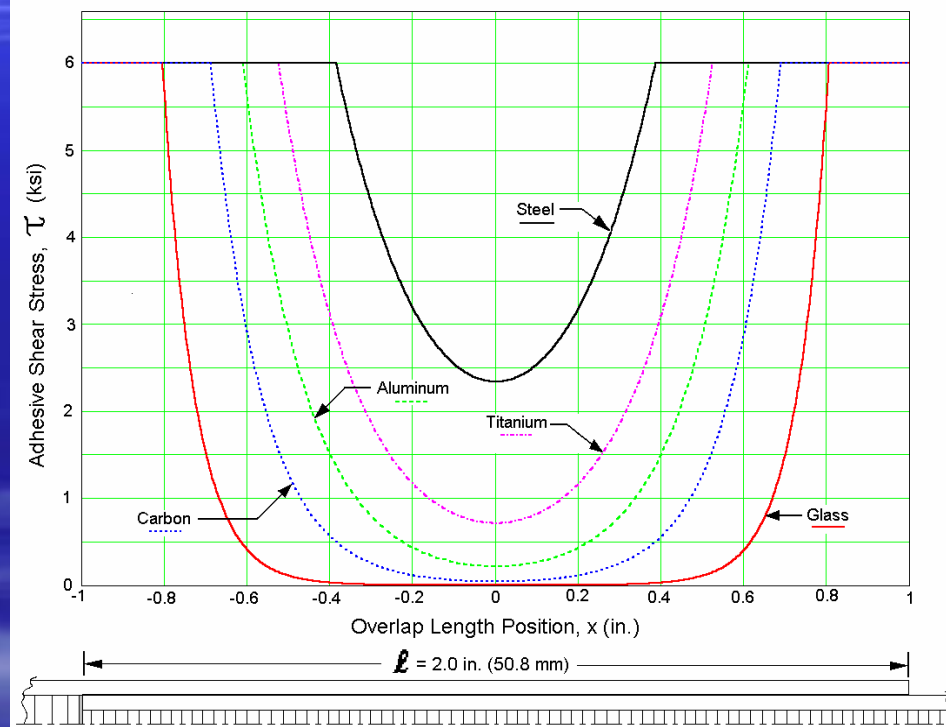
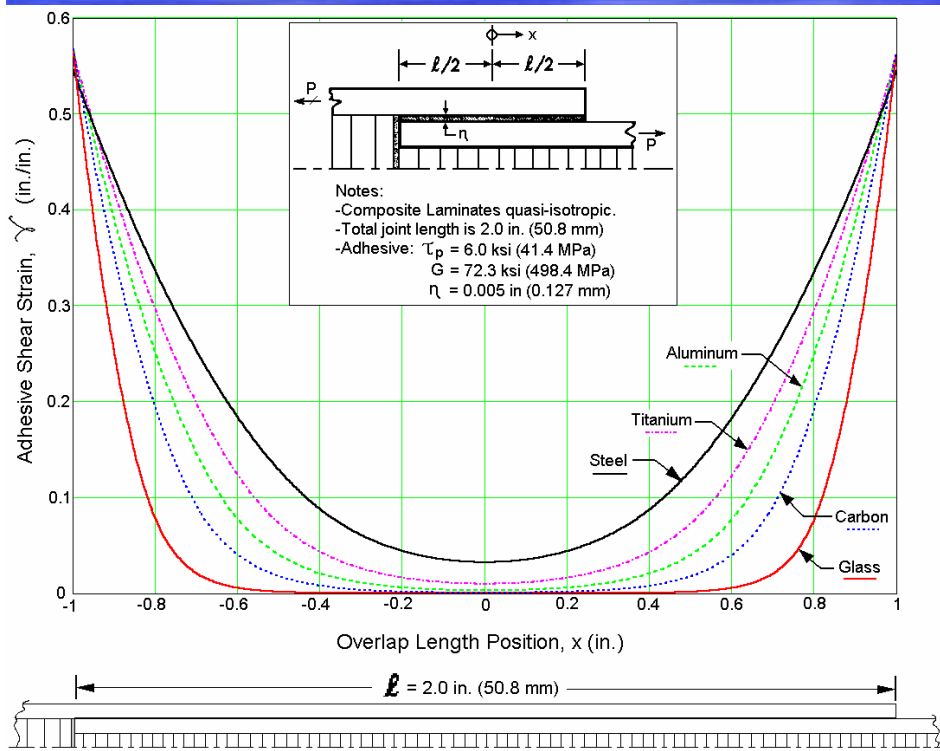
Status: Reviewing content.





Amsterdam 2007

# Part III – Joint Analysis (cont.)



## Adhesive Shear Stress & Strain



Amsterdam 2007

# Completion Plan

- September 2007 – Complete revisions and ballot preparations
- November 2007 – Final Review / Ballot Document
- CACRC meeting 2008 – TG reviews ballot comments
- 2008 – Document publication



Amsterdam 2007

Questions?

Comments?