

FD&E Committee Mission

A soul-searching and (hopefully)
interactive presentation

Hayley Brown

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Common Sentiments of the FD&E Committee

- “We need money for testing!”
- “We need to get more people involved!”
- “We need more **young** people!!”
- “We need more people from **industry** involved!”
- “We need more people involved in Total Life!”

This topic has been discussed (many times?) before...

SAE FD&E Meeting
Fall 2007

October 9-10, 2007

Iowa City, IA

New Horizons

- The steering committee has observed over the last 3+ years that new enrollment, event attendance and active collaboration in initiatives is declining.
- We therefore decided to develop some alternative activities that SAE FD&E could undertake in the future. After comments to this list are received from the membership the steering committee will decide which path to pursue.

The question was asked, what do people want from FD&E? Long silence....Are you willing to work on FD&E projects one day a month? We should have focused technical sessions on fatigue design methodology with hands-on-projects.

Unconfirmed Minutes - Fatigue Design & Evaluation Committee
Organizational Meeting
Honeywell Aircraft Landing Systems, South Bend, IN
October 24, 2002

FD&E Committee

- **Who are we?**
- What do we do?
- Why are we doing it?
- Where are we going?



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FD&E Publications

- 1968 – AE-4 Fatigue Design Handbook
- 1977 – AE-6 Fatigue Under Complex Loading
- 1988 – AE-10 Fatigue Design Handbook
- 1989 – AE-14 Multiaxial Fatigue
- 1999 – AE-28 Multiaxial Fatigue of an Induction Hardened Shaft
- ~~2010 – AE-....~~
- 2015 – AE-xx Total Fatigue Life of Welded and Parent T-Specimens (or a journal article)

FD&E AE-28 Authorship (1999)

Multiaxial Fatigue of an Induction Hardened Shaft

- Deere & Co.
- Kansas State University
- Rexnord Technical Services
- University of Illinois
- Ford Motor Company
- Lambda Research
- NIST
- Stanford University
- University of Nevada
- University of Toledo
- University of Iowa
- Oakland University
- Tower Automotive
- SCIMED
- University of Waterloo
- Chrysler Corporation

Total Life Fatigue Project

From a few recent meetings:

9:15 – 11:30 **Total life Project – Testing & Analysis Update, Discussion**

Tom Cordes, Eric Norton, Matt Campbell, Hayley Brown

8:45 – 10:00 **Total life Project – Testing & Analysis Update, Discussion**

Casey Gales, Eric Norton, Matt Campbell, Tom Cordes

9:15 – 11:30 **Total life Project – Testing & Analysis Update, Discussion**

Tom Cordes, Eric Norton, Matt Campbell, Hayley Brown

- Many others (Al Conle, Phil Dindinger, Lambda Technologies, etc.) have provided crucial testing and analysis
- In fact, the work that these people have done lines up with the chapter titles in AE-28

FD&E Committee

- Who are we?
- What do we do?
- **Why are we doing it?**
- Where are we going?

The SAE FD&E Committee is a diverse group of technical experts from industry and academia working together to advance the state of the art in the area of structural durability. It is the practice of this Committee to hold their biannual technical meetings on a rotating basis at both industrial and academic sites. Each meeting is hosted by a member(s) of the committee with assistance from SAE. Through the years, the committee has formed a number of technical divisions addressing such focus areas as surface enhancement, material property characterization, road/load data acquisition, structural analysis, component testing, and fatigue life prediction. By participating in organized efforts the committee provides a forum within which members can work together in a synergistic manner to advance the state of the art in structural durability. This forum also allows both industrial and academic members to informally check and/or improve their analysis and test techniques through participation in the current project. Through the years, members have found that the more they participate in the Committee activities, the more they grow in the area(s) of their particular involvement. The cooperation between industry experts, university professors and undergraduate and graduate students has produced additional “advancements” over the years as several of these students have graduated and accepted positions within industry and/or academia while continuing to stay active in the Committee. In fact, at any given FD&E Committee meeting, one can identify several active mentor/apprentice “generations” spanning several decades of Committee participation. Over the years, this type of commitment has ensured the continued growth and high level of technical productivity of this hard working committee.

*From Multiaxial Fatigue of
an Induction Hardened
Shaft by Tom Cordes and
Kevin Lease*

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Direction – Forward, not Backward

- We don't have to “get back to the good old days”

Comments included: the structure of the FD&E meetings has become more like a conference than a working group, wrong projects? Should we restructure - eliminate divisions, and work together as one group (including the surface enhancement group.)

- Although it is smaller, we seem to have the potential for what was desired
- Not everyone needs to be heavily involved with every project, but perhaps involved with some aspect of the mission of the committee



The 1975 versions of Kelly Donaldson and the 810 Automated System at the University of Illinois at Urbana-Champaign.



...involved with some aspect of the
mission of the committee?

Proposed Mission Statement

- We are the compass between academic developments and industry implementation in determination of fatigue life.
- We help industry know what tool to use when and where for determining accurate fatigue life so that companies can develop products with increased value to their customers.
- We provide an opportunity for professionals to expand their knowledge and toolset through applied professional development and collaboration with experts in the field of fatigue with an emphasis on design and evaluation of structures.
- We are an open and kind sounding board for new methods of determining fatigue life from industry, researchers, and graduate students
- We help teach and provide resources for students and upcoming fatigue professionals

Discussion

(please please please)

Discussion Points

- So what?
- Are these are goals?
- Should we have personal goals that support the committee's goals?
- How do we reach our goals?
 - Both personal and committee goals