



Research Assignment - 2009

Title of research assignment

Failure Modes of light weight sandwich structures

Principal Investigator H. N. Hashemi

Title Professor

College/Department Mechanical and Industrial Eng.

Email hamid@coe.neu.edu

Office address 251 Snell Engineering

Office phone 617.373.5515

Lab address 16 Forsyth

Lab phone 617.373.8543

Research abstract

Sandwich structures made of core material with low stiffness bonded to a facial sheet with high stiffness are often used in the design of light weight structures. These structures are also used for high energy absorption by allowing progressive failure of the facial material.

In this research we will investigate failure modes of sandwich structures made of foam material at the core bonded to aluminum strips. We will investigate the effect of core thickness on the failure of these composite under bending and compression. In addition we will investigate the effect of defects in bonding on the failure modes. The defects could be in the form of delamination with various size in the facial material. We will also try to simulate these failure modes through computer simulations. The mechanical properties of the sandwich components will be obtained experimentally.

Research activities/experience

You will be involved with various mechanical testing equipment. Some basic knowledge of specimens preparation and data acquisition will be helpful. We expect you be familiar with the Excel. Knowledge of computer and Matlab will be very helpful.

Expectations of RET

Same as above

