



GENESIS ENGINEERING SOLUTIONS, INC.

Solutions in Space and Technology

Celebrating
16 Years
of Engineering Excellence

Spring 2009 Edition

Green Technology

With the recent passage of the American Recovery and Reinvestment Act of 2009, billions of federal dollars are being directed to renewable energy and energy efficiency projects. These funds will "green" Federal installations through the application of solar Photovoltaic (PV) systems, energy upgrades, and other energy efficiency measures such as LED



Solar Electric Energy is Affordable in Maryland!

Did you know that Maryland supports renewable energy such as solar Photovoltaics (PV)? Federal and State incentives can subsidized up to 67% of the cost of solar PV system, and for some homeowners in certain Maryland counties, the system can pay for itself within 8 years. With systems lasting up to 25 years, that can result in up to 17 years of free electricity!



lighting systems. The program also provides for additional research in the advancement of energy technologies such as photovoltaic efficiency, thin-film commercialization, and batteries. GES is developing partnerships within this industry and plans to bring our space and technology expertise into this growing and exciting industry. Paul Hollandsworth is leading this program.

GES Quick Facts

- Winner of the Small Business Award in 2006 from the TECH Council of Prince George's County, MD
- Founded in 1993
- Engineering Products Include: Aerospace, Laser Technology, Composite Materials
- Services Include: Design, Manufacturing, Testing, Training
- Over 150 critical parts to orbit on numerous spaceflight missions
- GSA Schedule Contract Provider

Vision

Genesis will further it's proven leadership in engineering solutions for challenges in aerospace and high-tech commercial applications. Our versatility will enable us to grow as a premier aerospace and technology provider.

Mission

Genesis was founded to pursue passions, exercise talents, and create high-tech engineering solutions. Our mission can be stated simply: **We deliver excellence.**

We are set apart from other engineering companies by combining three key elements to our solutions: honest business conduct, technical proficiency, and responsive management. We take great pride to ensure that customer expectations are exceeded in all three of these areas. Our goal is to make our customers successful by delivering excellence, yesterday, today and tomorrow.

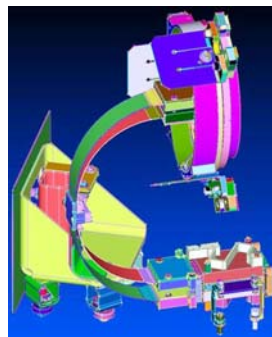
SDO Update

NASA's **Solar Dynamics Observatory** (SDO) soon will leave its home at GSFC and travel by truck to Cape Canaveral, Fla., where it is due to be orbited by an Atlas V rocket in November. The first mission in NASA's Living With A Star program, SDO will study the solar atmosphere from geosynchronous Earth orbit, taking images of the sun in multiple wavelengths at a resolution 10 times higher than high-definition TV.

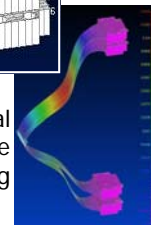
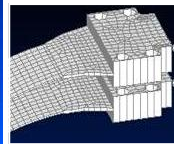


The Lead Deployables Technician, **Chris Matthews**, says, "The integration and test phases of SDO have been completed. We are now in the process of packing and shipping the project to Florida. The satellite will leave Goddard in early July. When everything arrives at Astrotech, our processing facility, we will move right into post-ship testing. Upon completion of our final CPT test, the mechanical and electrical teams will return to Goddard until the two other payloads in front of us launch."

Analysis



Using NASTRAN and Pro-E, Hristo Atanasoff provided engineering analysis of cables associated with JWST's NIRSpec equipment.



Loads generated through thermal contraction were a concern for the NIRSpec Detector Subsystem during cool down from 293K to 22K.

Hristo's experienced FEM modeling of the cable assured the project of an excellent margin of safety.



Smiles at the Alley

Lydia Stevens recently joined GES as a senior assembler. She is currently supporting the JWST program and is involved with surface mount and thru-hole flight and non-flight printed circuit boards, cable assemblies, chassis assembly and harnessing.



Lydia started working with electronics in 1979 through a training program for the Watkins Johnson Company. She attended the TESST College of Technology with a focus in electronics. Having previously worked for SAIC, Paxair, John Hopkins University APL, and Litton Systems, she has had the opportunity to work on space flight projects including New Horizons, Stereo A and B, Messenger, and Triana.

Lydia's parents moved to New York from Puerto Rico in the 1940's. She was born in Brentwood, NY (Long Island). In 1975 she moved to Maryland. She has two grown daughters -Lilliana (34) and Sheena (23).



Fabrication of Flight Components



The ISIM Electronics Compartment (IEC) of the JWST project has progressed to the fabrication stage of the flight parts. Shown here are glimpses of the numerous aspects of the assembly and production for this critical portion of the space telescope.

Composite Shell

IEC Main Structure



Genesis Engineering
Chris Tolman, Bryant White, Tim Switzer, Nick Malcolm, Sagar Nirola, Mike Lynch

Aurora Flight Sciences
Ed Wen, Debbie Zamora, George Bausher

Flying-S Aviation
Dave Shaw, Graham Parish, Adam Wesley, Dustin York

Internal Harness

Mid-Infrared Instrument (MIRI)

GES is partner with **Johns Hopkins University Applied Physics Lab** in the fabrication of flight cables.

Tamara Sam (GES)
Debbie Cope (GES)
Don Clopein (APL)



Composite Baffles

GES partnered with **Middle Georgia College Aviation Campus**

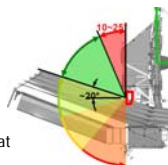
Frank Huber (GES)
Rick Krontz (MGC)



(L-R) Sam Burney, William Barnes, Jeb Staples, Denise Powell



The baffles are critical to the success of the JWST project. The IEC houses the electronics for the science instruments (that operate ideally at cryogenic temperatures). However, the electronics inherently generate heat. The purpose of the directional baffles is to control the heat emission range away from the telescope.



Employee Highlights

Chris Matthews has joined GES as an Integration Support Engineer. His most recent work has been with NASA's Solar Dynamics Observatory (SDO) functioning as a lead deployables technician.



Chris and his wife Emma have two children; Elijah (5) and Faith (4).

He also has 15 years of experience as a home improvement contractor specializing in framing and custom cabinetry.

Chris' personal hobbies include softball, bowling, weight lifting, woodworking, and camping with his family. One of his long term goals is to build & fly an ultra-light aircraft.

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