

AEROASCENT

FORT WORTH AIR & SPACE MUSEUM FOUNDATION

**EXHIBITION
DEVELOPMENT**
a game of
moving parts

**EARS TO
THE SKY**
DFW's Noise
Compatibility
Office deals
in volume

**Aerospace Innovation
STARTS
WITH STEM**

GOOD NEWS
former anchorman Mike Snyder
teams with FWASM Foundation



FROM THE DIRECTOR'S DESK

Dear Friends:
The depth and diversity of aerospace achievements in North Texas continues to astound me. Every day, I'm reminded of why this region absolutely deserves a world-class museum devoted to its far-reaching contributions to the industry. As we continue to research content and build support for our preliminary exhibition (opening May 27, 2011 at the Fort Worth Museum of Science and History), I've had the privilege of visiting many fascinating people and places – all right here in North Texas. In the past few months alone I have:

▶ Toured CareFlite's operations in Grand Prairie and learned that they are the oldest joint-use air medical program in America and have transported more than a half-million patients since they were founded in 1979.



▶ Met with Jay Carter of Carter Aviation Technologies in Wichita Falls, where I got a close-up look at his company's Personal Air Vehicle Demonstrator, an amazing slowed-rotor compound aircraft that can take-off vertically and fly up to 500 mph horizontally.

▶ Toured the modern manufacturing facilities of Bell Helicopter and learned about the multifaceted, complex development of the V-22 Osprey, a revolutionary tiltrotor aircraft, and other emerging technologies.

▶ Visited the remarkable manufacturing facilities of Triumph Aerostructures – Vought Aircraft Division in Dallas and Grand Prairie, to learn that they design and build aerostructures for Boeing, Bell Helicopter, Northrop Grumman, and many other companies; while also providing a wide range of testing services at their industry-leading lab.

▶ Toured the cutting-edge production facility at Lockheed Martin where they are

implementing state-of-the-art technologies such as Radio Frequency ID (RFID), intelligent laser systems, and robotics to produce F-35 Joint Strike Fighters.

▶ Attended an Aviation Summit put on by the North Central Texas Council of Governments to hear how the aerospace industry, FAA, universities, local governments and airports are all working to engage and educate the community about the current benefits and future potential of aviation in North Texas.

We hope to spotlight each of these exciting stories and many more in future newsletters and on our web site (www.fwasm.org). Before long, many of the amazing accomplishments you read about will be brought to life through interactive, multi-media content in the 2011 exhibition. In honor of these and other North Texas visionaries, we've decided to name the exhibition *Ascent: When Dreams Defy Gravity*.

For now, I hope you'll enjoy this second edition of the AeroAscent newsletter, in which we shed more light on the aspirations, activities, and challenges associated with creating a stunning exhibition and an extraordinary new museum.



Warm regards,
Jeff Johns
Executive Director

FUNDING THE FUTURE

MAKE YOUR CONTRIBUTION PERSONAL

While the Foundation's mission furthers the public good, our 2011 exhibition is nevertheless 100 percent privately funded. That means we will rely wholly on the contributions of generous donors to secure the \$4 million required to create and manage the first-class exhibition.

We have come a long way toward that goal, but we still have more funds to raise. As our readers might expect, a substantial portion of our funding has and is expected to come from the aerospace industry leaders whose achievements we'll celebrate in the exhibition. Corporate donations alone, however, won't be enough. Individual contributions are also essential, and every bit as meaningful.

No matter the size of the donation, supporting the Foundation is like investing in the well-being of the North Texas community. The value of every dollar compounds as the exhibition and Museum preserve important parts of our history, bring economic benefits to the area, and inspire a love of learning in our future leaders.

Direct cash donations may be made via PayPal through the Foundation's web site www.fwasm.org. And for those who are interested in making a more substantial contribution, our 501(c)(3) organization presents a variety of tax-advantaged giving opportunities.



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AEROSPACE INNOVATION STARTS WITH STEM

As we finalize the content of our 2011 exhibition and continue planning for the Museum, there's a common thread running through every decision we make: education. We're not just out to teach people about aerospace; we're working to stimulate their interest in the broader concepts that make flying (and everything else) possible. In school curriculum terms, that means science, technology, engineering and math, collectively known as STEM.

It's an extremely important mission, as America finds its long-held post atop the scientific and technological world increasingly challenged. Comparing high-school student performance in 30 developed nations, the 2006 Program for International Student Assessment ranked the U.S. 25th in math and 21th in science. With rankings like that, it's not surprising that the number of U.S. college graduates in STEM fields has been on the decline.

Reclaiming America's leadership in technical fields isn't just about bragging rights. The issue has enormous long-term



implications for our economy and quality of life. The National Science Foundation says that 80 percent of all jobs created in the next decade will require math and science skills. But as fewer and fewer engineers, doctors, scientists and other technically-skilled graduates enter the U.S. workforce, more high-paying jobs and contracts will shift overseas, and the U.S. will grow increasingly dependent on the rest of the world to solve tomorrow's problems.

STEM ON THE RADAR

The STEM crisis isn't a recent revelation. It's a problem that our governments and academics have known about for years. And many have sprung into action.

In 2006, the U.S. National Academies made recommendations to Congress to improve K-12 math and science programs and grow the pool of students who pursue STEM-related degrees in college. In the same year, the Bush Administration created the American Competitiveness Initiative to increase federal funding to STEM fields and higher education programs. More recently, the Obama Administration launched its Educate to Innovate program to pursue similar goals, and just last month announced a plan to add 10,000 STEM teachers to schools across America.

The STEM Education Coalition, comprised of hundreds of academic institutions, has emerged as the collective advocate for better STEM programs and resources in our schools.

DOING OUR PART

For those in the North Texas aerospace industry, the STEM education issue hits especially close to home. Without highly educated and motivated individuals, this region never would have become such a hotbed of aerospace innovation (and we'd have no reason to build a museum about it). Indeed, if we don't take action today to usher the next generation of young minds into technical fields, our local prominence in aviation could become only a memory.

That's why the Fort Worth Air & Space Museum will focus less on history, more on discovery. We are charged not just with celebrating all we've accomplished, but with inspiring new thinkers to do even better. In our 2011 exhibition and the final Museum, we'll do it by immersing visitors in exciting, interactive experiences that ignite their curiosity and showcase the amazing powers of math and science.

In addition to our main attractions, we're already taking steps to develop a complementary educational outreach program. In partnership with local companies, schools and civic leaders, we'll take our message directly to students in their own environment.

Of the countless young people we'll reach, some may find a calling in the aerospace industry. Many more students will walk away with a heightened perception of exactly how cool STEM can be. As they do, they'll be one step closer to resolving the most critical technical challenges of the future.

EXHIBITION DEVELOPMENT A GAME OF MOVING PARTS

The best museum exhibitions are their own works of art – thousands of sights, sounds, words, activities and images blend seamlessly to immerse you in a visitor experience that is capable of transforming your way of thinking. But despite the polished final product, the path taken to produce it is rarely so smooth. With constant maneuvering and reconfiguring (often until the moment the doors open), it's more like assembling a jigsaw puzzle in which the picture keeps changing.



Earning Your Wings Design Lab

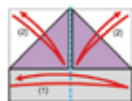


You can make this airplane with the insert provided. Follow the Instructions to the right.

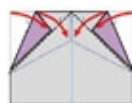
Advanced Aero-gami

What do today's curious kids have in common with the ancient Chinese, Leonardo Da Vinci, and modern aerospace engineers? At least one thing: they've all played with paper airplanes! Almost since the invention of paper itself thousands of years ago, inventors and innovators have been using it to study the principles of flight. Even Jack Northrop, co-founder of the Lockheed Corporation, was known to use paper models to test concepts for full-scale aircraft. In simple terms, the density of plain paper allows it to mimic the behavior of metals used in real airplane wings. Could your next fold create the forerunner to a futuristic flyer?

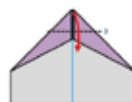
YOUR TURN TO TRY IT OUT (SEE INSERT)



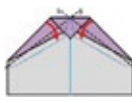
Step 1
With patterned side down, fold paper in half and unfold (1). Bring the top corners to the center crease and unfold (2).



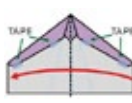
Step 2
Fold both corners along line 1 and fold over along line 2.



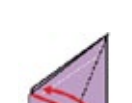
Step 3
Fold the tip down along line 3.



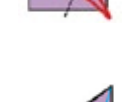
Step 4
Fold the sloping edges along line 5.



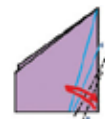
Step 5
Then fold paper in half. *Optional: You may use tape to hold the flaps.*



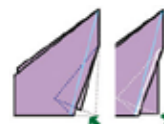
Step 6
Fold the top side wing along blue line. Then unfold. Turn over the paper and repeat for other side wing. Then turn over again.



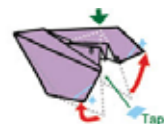
Step 7
Fold the line 6 and unfold. It is top side of the fuselage.



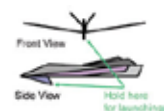
Step 8
Fold the line 7 and 8 and unfold as done in the previous step.



Step 9
Push the corner into the fuselage and collapse it inside between layers. Then pull out the corner using an inside reverse fold along line 7. This part will be tail fin section.



Step 10
Push down the tail fin using mountain fold along line 8. Bring both wings up and bend up the edge along line 9. *Optional: You may use tape to hold fuselage.*



Step 11
Bring out a small triangle part from the fuselage head. You can hold this part for launching the paperplane. Adjust the creases until the model has this front and side profiles. *Note that the angle of the wings is upward. Bend the trailing edge little bit upward for better flight!*



efforts to acquire important artifacts, photos and video from industry leaders and private collectors. There are sensitive negotiations with companies and governments to gain their permissions and credit the appropriate parties. Every fact and figure must be checked and rechecked.

What we had planned to spread across 10,000 square feet suddenly had to fit in 8,500, as the Fort Worth Museum of Science and History needed to expand one of its important permanent exhibitions. And, as time goes by, we continue to learn about more exciting aerospace achievements in North Texas, which would make great additions to the *Ascent* exhibition if we could just work them in.

It's no different for our 2011 exhibition, which we've titled *Ascent: When Dreams Defy Gravity*. Even at a fraction of the size of the eventual Fort Worth Air & Space Museum, the preliminary exhibition is a huge project involving three key firms that form an extraordinary development team, along with many peripheral contributors. Each plays an important role in making all the puzzle pieces fit together.

STARTING FROM SCRATCH

So what goes into creating a memorable museum exhibition? Probably a lot more than the average visitor imagines.

Without even mentioning the initial process of securing a site and dates, researching and assembling the content is a massive undertaking.

There's the constant outreach to identify, interview, and collaborate with experts in the field. There are dozens of simultaneous

Then come the questions about how best to present

this wealth of material within our given space and budget. Should this section incorporate touch-screens, video, or a static display? Should this airplane replica be 1/10th or 1/48th scale? How much of the exhibition should be interactive versus didactic, and what elements deserve high-tech audio-visual treatments?

To bring it all together on time requires a small army of interpretive planners, historians, writers, graphic designers, video producers, fabrication specialists, project managers, installation experts, educators, and others.

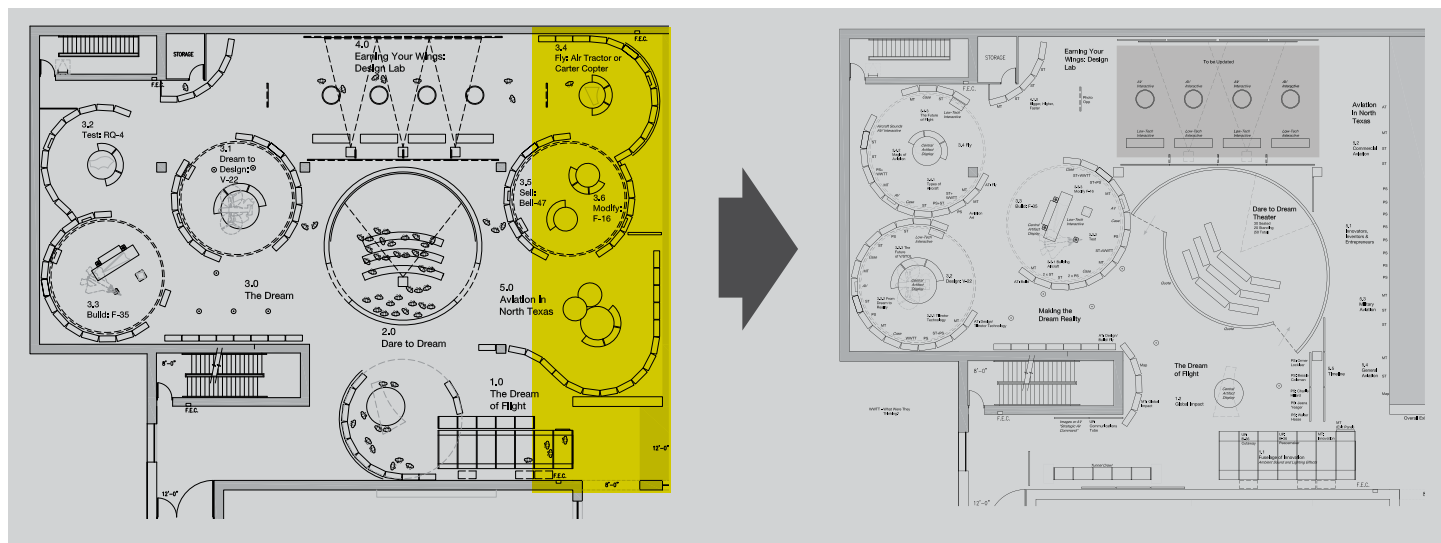
THE DANCE CONTINUES

Just when you think you've got it nailed down, something changes. The reality of the museum industry is that you're always aiming at a moving target. Just recently, for example, we at the Foundation learned that our space allotment for the 2011 exhibition would be slightly reduced.

In the end, the ever-evolving nature of our exhibition requires us to get even more creative as we seek the right balance of grandeur and restraint. Like a classic movie, much of the original content may wind up on the cutting room floor. But the audience will benefit from a final presentation that is more focused, more compelling, and even more remarkable.



Artifact Sought for the Exhibition: A Helmet Mounted Display System Designed for the F-35



On the left, the original exhibit layout at 10,000 square feet. Area in yellow shows the trimmed area. On the right, the new exhibit layout at 8,500 square feet.

NORTH TEXAS TRAILBLAZERS

CELEBRATING AEROSPACE ACHIEVEMENTS & INNOVATIONS

EARS TO THE SKY: DFW AIRPORT'S NOISE COMPATIBILITY OFFICE DEALS IN VOLUME

It's 2:30 in the morning, and a local resident calls DFW Airport's 24-hour noise hotline to complain about a jet that rattled his windows and jolted him from sleep. "What's going on?" he demands to know. "That plane nearly took off my roof!"

On the other end of the line, a responder with DFW's Airport Operations Center logs the caller's information. Staff from the Airport's Noise Compatibility Office look up the actual flight data from that morning and calls the resident back with an explanation: "The noise you heard was a Boeing 757; it made an early turn

out of its usual flight path to avoid a thunderstorm. As it passed your house, it was flying 2,500 feet off the ground."

The caller may have lost a little sleep, but he's content to know that the fly-by (well clear of his roof) was for the safety of the passengers on board. DFW Airport, meanwhile, chalks up another victory in maintaining good relations with the communities it serves.

"Our job is to educate – to replace perception with fact," says Sandy Lancaster, who manages the Noise Compatibility Office.

Part of the Airport's Environmental Affairs Department, the Noise Compatibility Office helps local residents and businesses live in harmony with airline traffic. And



with more than 1,800 flights per day operating on DFW Airport's seven runways (the most runways of any commercial airport worldwide), there's a lot of traffic indeed. In addition to taking calls from individuals, the office works with cities and builders to avoid placing new developments in "incompatible" areas – where they might be continually buzzed by passing planes.



DFW Airport's Noise Compatibility Office



Good News: Former Anchorman Mike Snyder Teams with FWASM Foundation

You probably know him as the face of the evening newscast on NBC 5 KXAS. For 30 years, anchor Mike Snyder was a regular guest in the living rooms of many North Texas families. Even longer than he's been a newsman, he's been a visible advocate for many charitable

programs benefiting education, disease prevention, and military families, among others. Now, the Fort Worth Air & Space Museum Foundation is proud to announce that Mr. Snyder will join its cause as a public relations consultant and collaborator to help raise funds.



A MULTI-SENSORY SYSTEM

Twenty-eight noise monitoring stations dot the landscape within a 5-mile radius of DFW Airport, covering 110 square miles where aircraft noise is most noticeable due to takeoffs and landings. The monitors listen to ambient noise and relay information back to the office, where a 90-square-foot projection screen displays real-time radar data of the entire DFW airspace. Through continuous feeds of sound and flight information, Airport personnel can see the exact flight path of every plane within 20 miles, how fast it's going, how high it's flying,



Sandra Lancaster, Manager, and Harvey Holden, Planner, at work in the Noise Compatibility Office.

and how loud it is as it enters or leaves the airport. Computers crunch massive amounts of historical data to ensure DFW Airport stays under its predicted noise impact on surrounding areas.

It's a wealth of technology put to use for the citizens of North Texas. In fact, the huge screen and Noise Conference Room were built with the public in mind.

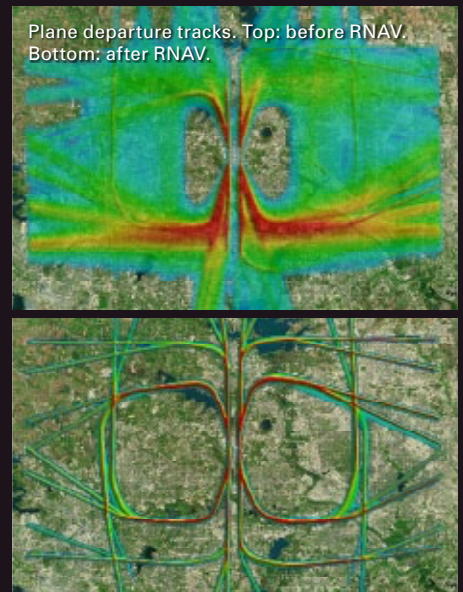
"We could do our job on a regular PC screen, but then only a few people at a time could see it," says Lancaster. "This center allows us to bring in large groups and help them understand how the airport works."

The noise center, built in 1998, hosts local homeowners associations, civic committees, school groups, and even airports from around the world who want to learn from DFW's one-of-a-kind system.

"There was a time when it was a tough issue," says Lancaster, referring to complaints from noise-weary neighbors. "But this system lets us take a collaborative approach to establish credibility with the community. Now we only get 2-3 complaints for every 10,000 flight operations."

ALWAYS LISTENING

On one hand, the job of the Noise Compatibility Office keeps getting easier. Ever-improving technologies, such as Area Navigation (RNAV), allow air traffic control to route planes more efficiently and safely through aerial "highways," which impacts fewer homes and developments. Also, aircraft have gotten quieter over the past thirty years as the FAA requires aircraft and jet engine manufacturers to meet more stringent noise reduction targets.



On the other hand, the enormous airport, already the third busiest in the world, still has enough capacity to nearly double its current operations. DFW Airport is actively working to grow its business by adding more airlines and more flights. Couple that with the relentless drive of homebuilding and commercial development in the mid-cities region, and keeping things "quiet" becomes more difficult.

"We can't control when and where the planes fly [the FAA does that], but we can explain why they do what they do," says Lancaster. "Most people just want someone to listen and respond, and that's why we're here."

So while DFW is larger than JFK, LaGuardia, Boston, Newark, Baltimore, Reagan National, and LAX airports combined, it receives fewer complaints than any one of them. To the people of North Texas, that's the pleasant sound of a successful community partnership.



FWASM FOUNDATION GOES ONLINE

Be sure to check out our new web site, where you can:

Make a donation.

Learn much more about our 2011 exhibition, *Ascent*, and the future Museum.

Explore North Texas's legacy of aerospace innovation.

Keep up with our Director's Blog.

Look for upcoming aviation-related events.

Get answers to frequently asked questions.

Download this newsletter!

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