

USAF B-1B Biohazard Compliant Nacelle Finishing Structure

PROJECT OVERVIEW

Project Statement: Develop a USAF bioengineering compliant finishing structure for the Ellsworth Air Force Base 28th maintenance squadron's nacelle re-finishing procedures.

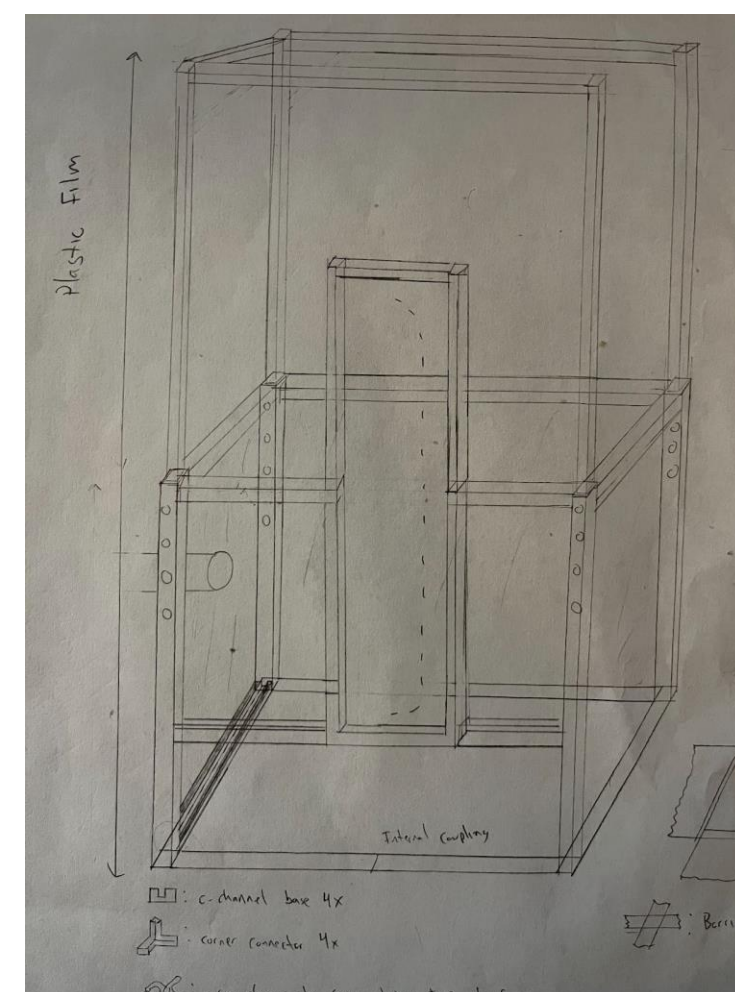
Needs:

- Portable and collapsible with modulating height.
- Contain 90-100% of air particulates.
- Assembled by 2 people in under 2 hours.
- Adapt current USAF equipment and PPE.
- Integrate a decontamination room.

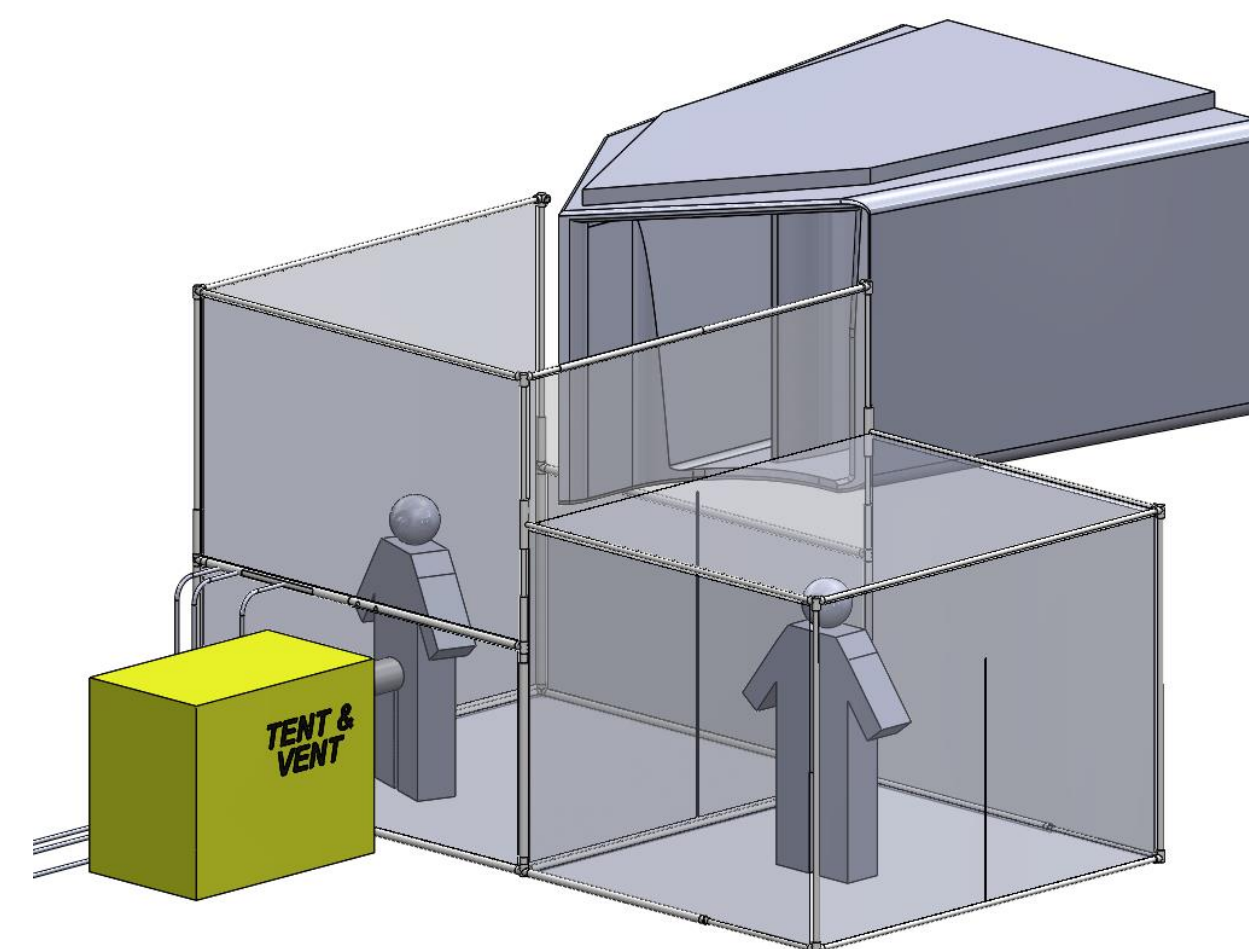


Previous Ellsworth AFB Paint Booth

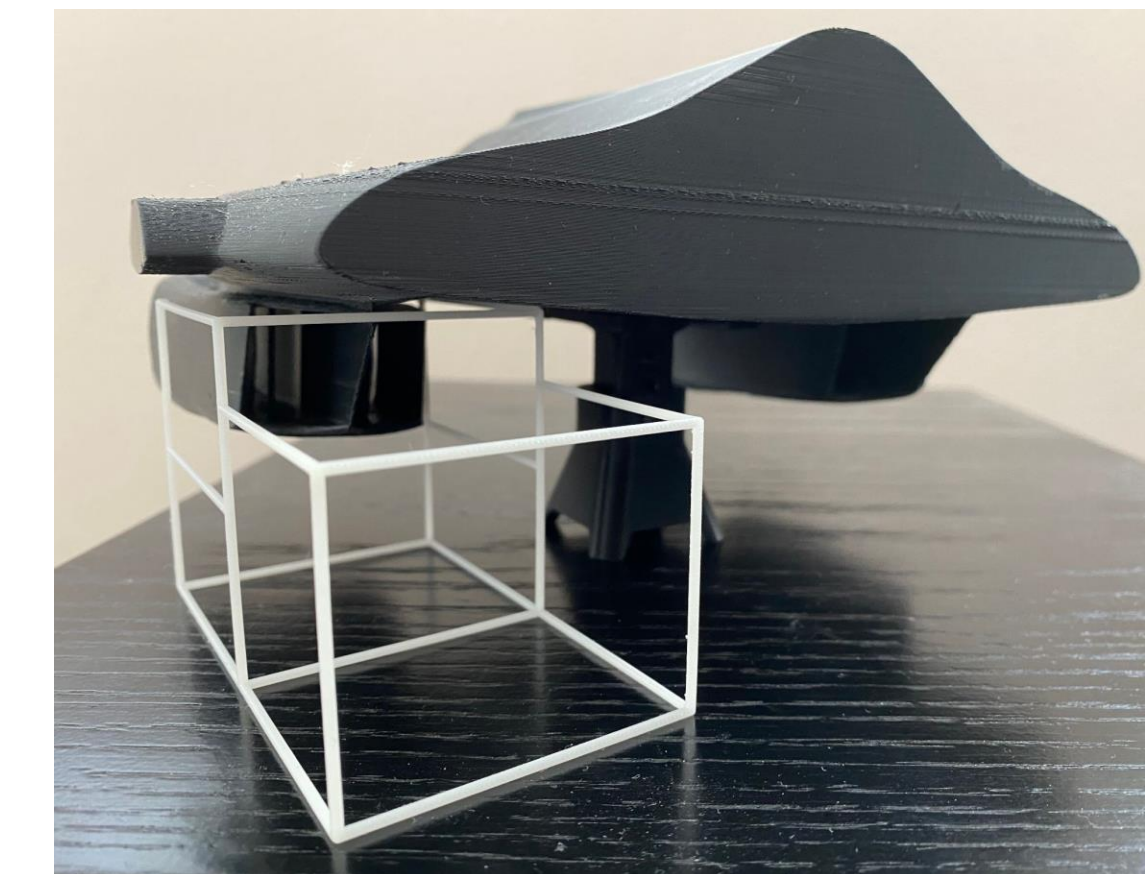
PROTOTYPE EVOLUTION



Initial Sketches



CAD Revision A



3D Printed Prototype



3D Print w/ Figures



Initial Assembly

TEAM MEMBERS



Travus Clark



Eric Apgar



Hernan Velazquez-Munoz



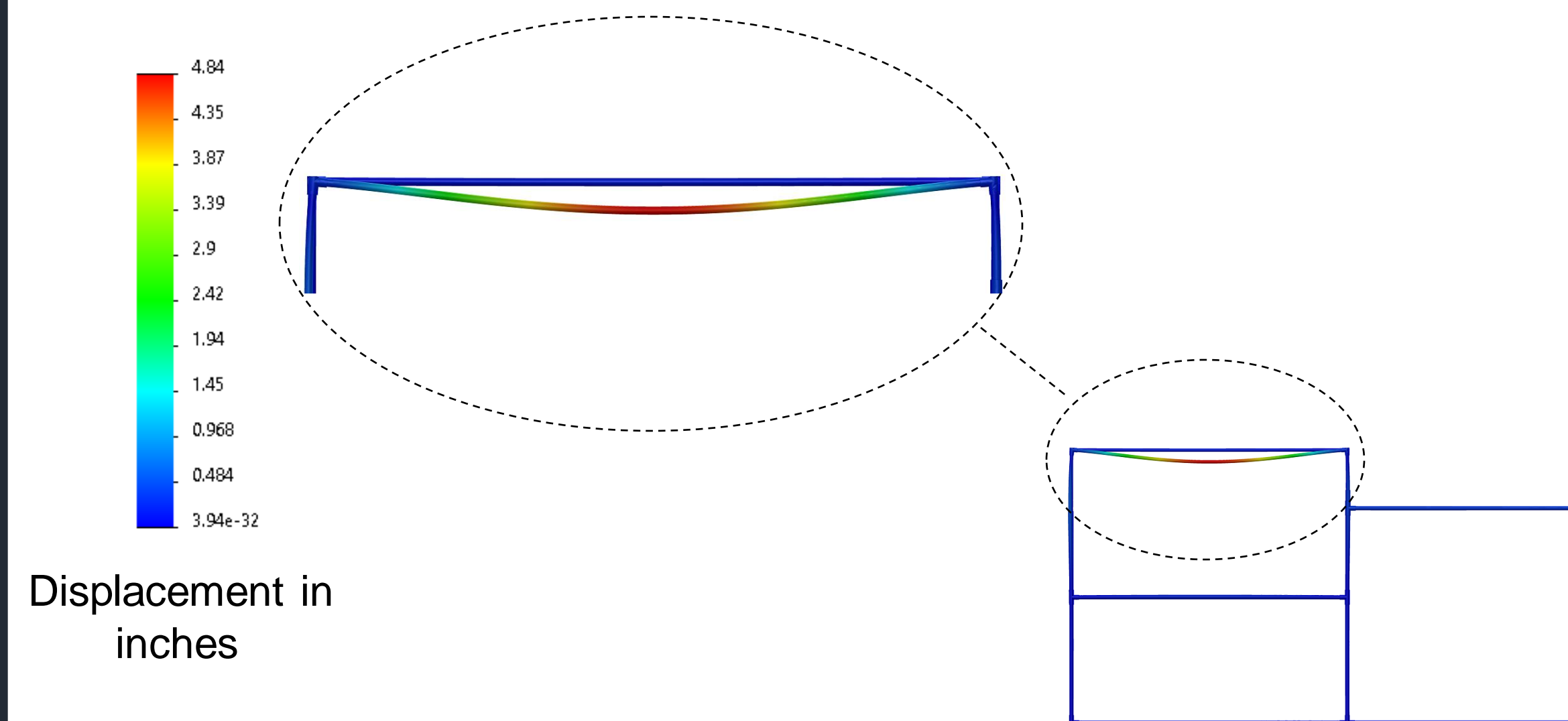
Joshua Pasco



Daniel Murillo

REQUIREMENT VERIFICATION

Deflection plot of a 25lb load to correlate simulation and testing.



SDSU team members at Ellsworth AFB performing on-site demo and testing.



FINAL DESIGN SOLUTION



ACKNOWLEDGMENTS

We thank the following teams and individuals for their support, contribution and mentorship throughout the development of this project.

USAF Ellsworth Team:

- TSgt Aguiar
- SrA Mendoza
- MSgt Parker

SDSU:

- Dr. Scott Shaffar
- Dr. John Abraham
- Julie Smitherman

NSIN Team:

- Jason Combs
- Cassandra HeymanSchrum
- Patience Lowery
- Luis Martinez
- Larsa Summerville

ABOUT THE SPONSOR

USAF: Preeminent force in air, space and cyberspace dedicated to win through innovation, problem solving and execution.

NSIN: U.S. Defense problem solving network driven to combine defense, academic and entrepreneurial innovators to combat national security problems.