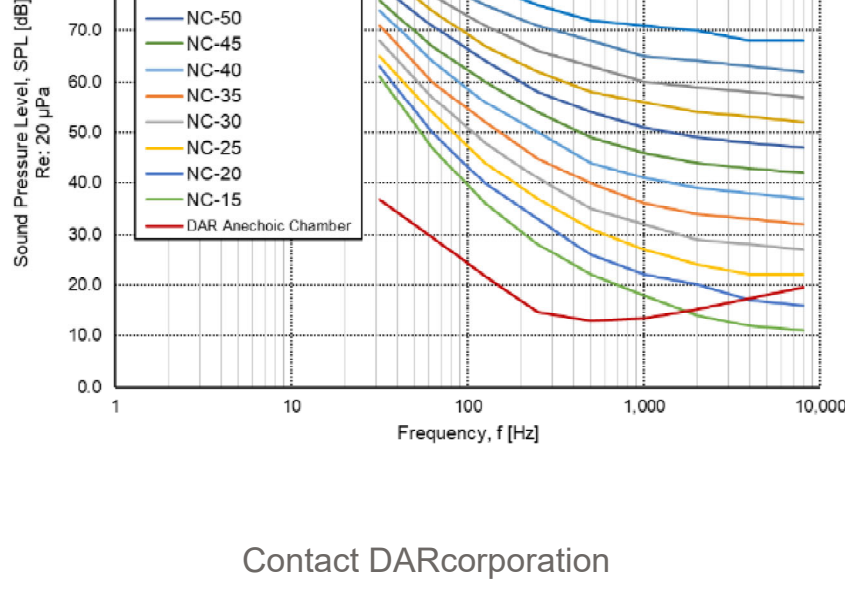
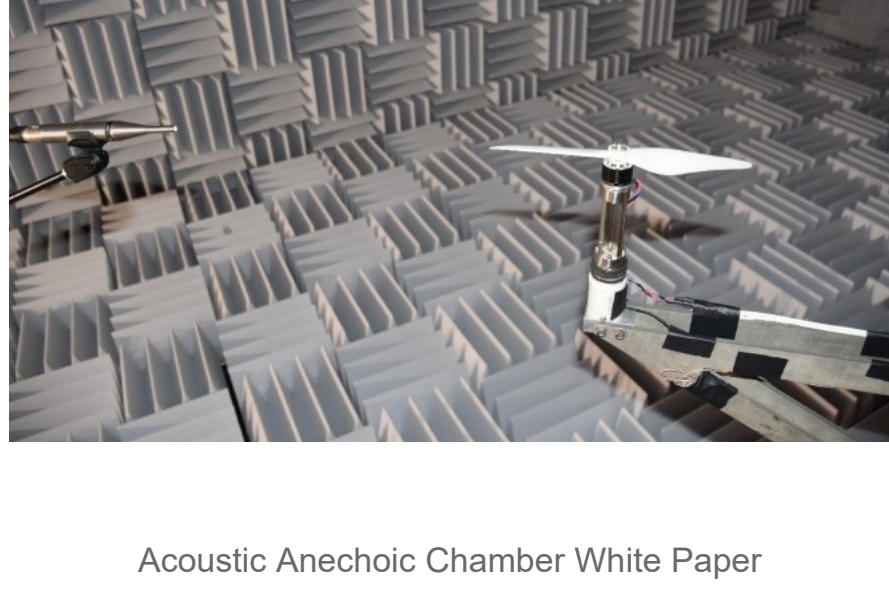


Acoustic Anechoic Chamber

DARcorporation recently finished ambient noise level and free field verification testing of our onsite 22'x17'x7'8" acoustic anechoic chamber. Results show that a Noise Criteria value of NC-23 is achieved based on ANSI/ASA S12.2-2008. The ambient noise levels also compare favorably with NASA Quiet Flow Facility in the Langley Aircraft Noise Reduction Laboratory. The anechoic chamber is in the process of being characterized to meet ISO 3745 standards. Free field results also meet ISO standards.

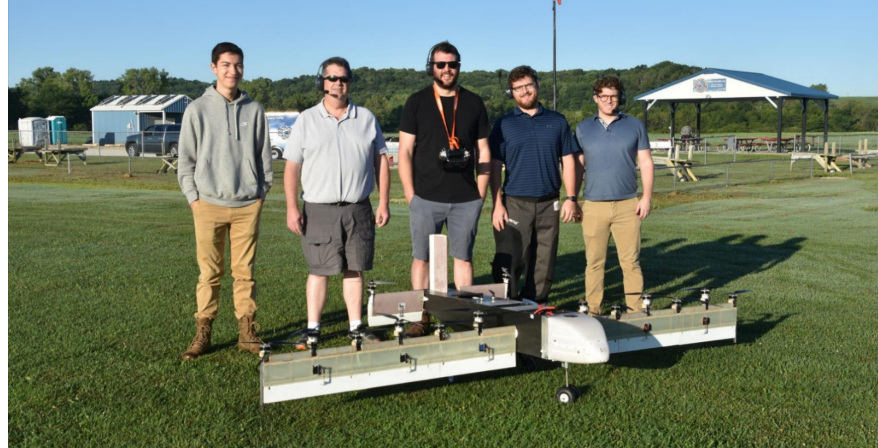
With an on-site acoustic chamber and acoustic testing instruments, we can measure and compare the acoustic/noise signature of different propellers and ducted fans. These measurements allow us to help customers design or select the quietest propeller or ducted fan that meets their performance requirements.



[Acoustic Anechoic Chamber White Paper](#)

[Contact DARcorporation](#)

MAVRIK



Modular Air Vehicle Research Intelligent Kit (MAVRIK) Begins Flight Test

Modular Air Vehicle Research Intelligent Kit (MAVRIK) is designed as a research test-bed aircraft that can be easily reconfigured to change the number of motors, wing and tail configuration and tilt-wing capability. The initial configuration that has been chosen for testing is designated Configuration 11 (C.11) and is the Distributed Electric Propulsion (DEP) version with 12 motors on the wings, two motors on the tail, tilt wings and tilt tail allowing for vertical take-off and landing. Tethered hover testing performed this Spring provided a good baseline for beginning untethered flight trials at the Clinton International Model Airport. The test team has validated the vertical take-off and landing capability for the MAVRIK configuration 11 aircraft. Current testing is focused on the transition from vertical to horizontal flight and validation of the tilt-schedule and controller gains.

[Flight Test Video](#)

Vertical Axis Wind Turbine



DARcorporation engineers can perform prototype testing of all types of wind turbines (including Vertical Axis Wind Turbine - VAWT) in wind tunnels. Our test stands are built and designed to accommodate sensor integration and mounting on the wind turbines. Using a torque sensor, laser tachometer and magnetic particle brake, data acquired in the wind tunnel include the wind turbine RPM, torque and power generated from a range of pre-determined wind speeds. DARcorporation engineers develop wind tunnel test plan that will capture the performance data of wind turbine and analyze results recorded from the wind tunnel data at both constant wind speed with varying torque and constant torque with varying wind speed to provide the performance of the wind turbine at multiple wind speeds and generator loadings.



[VAWT Wind Tunnel Testing Video](#)

[Contact DARcorporation](#)

Advanced Aircraft Analysis 5.0 Released

Exciting New Features and Enhancements!

AAA 5.0 allows for increased flexibility in the types of configurations that can be designed. While previous versions needed a fuselage to be modeled, methods have been updated so that users can now design a true flying wing. With the current interest in VTOL configurations in mind, AAA 5.0 makes it easier to design aircraft with tilting wings for different flight conditions. The center of gravity of fixed equipment can either be kept constant or variable between different flight conditions to reflect different flight configurations.

Power effects such as blown wing effects are more accurately calculated, making AAA 5.0 well suited for Distributed Electric Propulsion configurations.



AAA 5.0 now includes the Inherent Tail Surface Area Sizing module, which calculates the required tail surface area for a given desired static margin. More elaborate than the conventional volume method, the new calculation takes into account changes in center of gravity and aerodynamic center due to the tail surface change. This is compatible with conventional horizontal tails, V-tails, canards and three-surface aircraft.

Users have more options for control surfaces such as drag rudders, differential canard and differential elevators.

The Weight, Aerodynamics and Stability & Control modules have been significantly overhauled to streamline the work flow. Weight, Center of Gravity and Moment of Inertia calculations have been split into different submodules. The Stability & Control module was restructured so the different functionalities are easier to find.

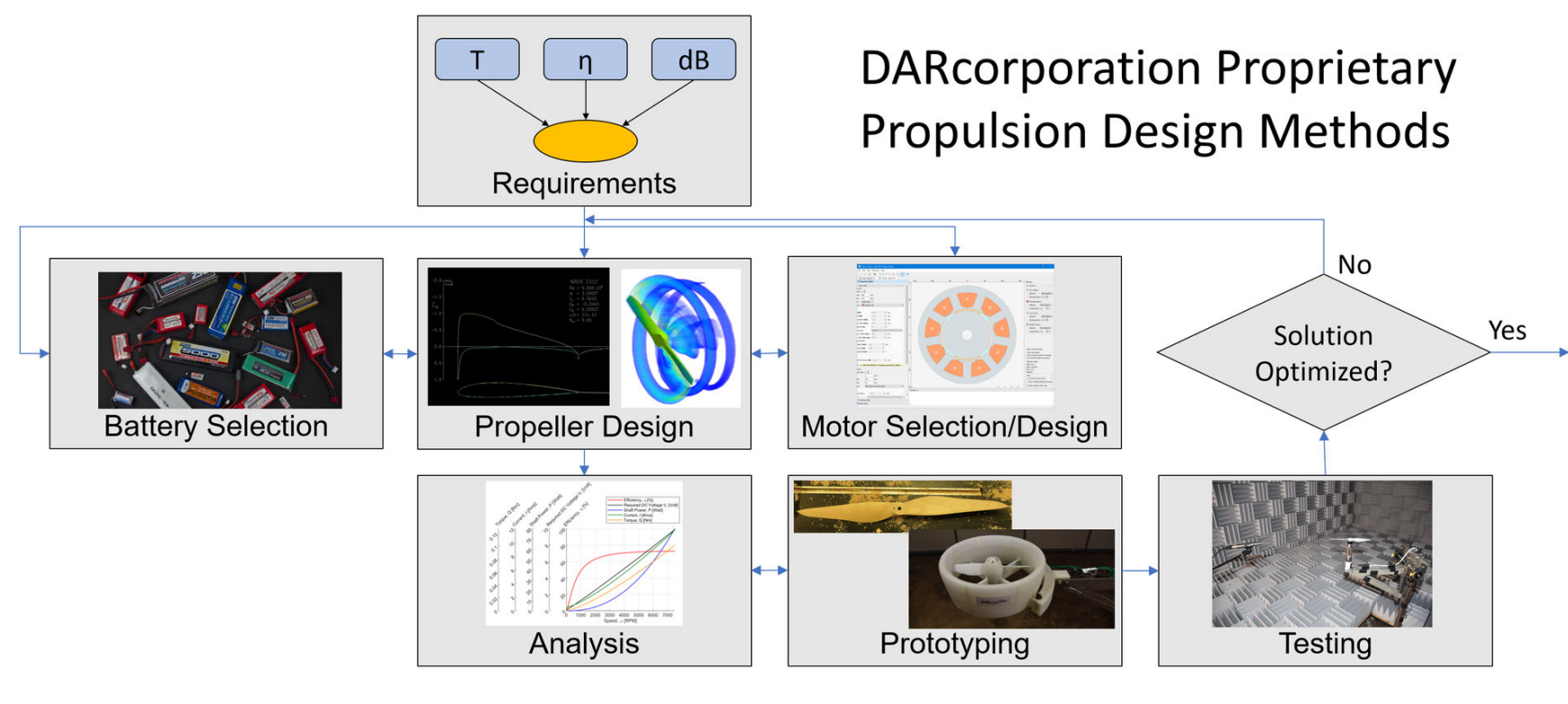
Software maintenance customers and annual license holders will receive a separate email with upgrade instructions for AAA 5.0.

[What's New in AAA 5.0](#)

[Request Software Pricing](#)

Defense TechConnect Innovation Summit and Expo

Quiet and Efficient UAM Propulsion Technology



DARcorporation is one of the 20 finalists for the Urban Air Mobility Challenge sponsored by the Vertical Lift Consortium. On September 28, 2022, Dr. Anemaat gave a presentation at the [Defense TechConnect Innovation Summit and Expo](#) in Washington DC about the proprietary in-house methods used to develop quiet and efficient UAM propulsion technology. The methods combine motor, battery and propeller data to create a propulsion system that is more efficient and quieter than traditional combinations of available COTS components. The noise signature can be verified in the in-house anechoic chamber. DARcorporation applies the methods in the development of the Integrated Electric Propulsion Unit, a compact package where a rotor is integrated in the motor housing.

Consulting Support Engineers

We understand the current engineering job market is tight and finding engineering talent can be difficult. DARcorporation engineers can temporarily fill open jobs until a permanent solution can be found or the job is finished.

DARcorporation engineers are experienced in:

- Aircraft Conceptual and Preliminary Design
- Computational Fluid Dynamics
- Structural Analysis and Structural Dynamics
- Propulsion System Design
- Propeller, Rotor and Ducted Fan Design
- 3D CAD
- Propulsion System Testing (Performance and Acoustics)
- Flight Testing

[Contact DARcorporation](#)

Remembering Dr. Jan Roskam



Dr. Jan Roskam

1930 - 2022

With a heavy heart we announce that Dr. Jan Roskam passed away on September 9, 2022 at the age of 92. In 1991 Dr. Roskam co-founded, with Dr. Willem Anemaat, Design, Analysis and Research Corporation (DARcorporation) and functioned as president until 2004. From 2004 until 2019 he served as Project Advisor. After his retirement he stayed on as a consultant to DARcorporation.

During his tenure at DARcorporation Dr. Roskam supervised the technical aspects of all consulting work. He reviewed all consulting work and was involved with all engineering meetings for consulting projects.

Dr. Roskam authored a two-volume text called: *Airplane Flight Dynamics and Automatic Flight Controls* and an eight-volume text called: *Airplane Design* and he co-authored (with Dr. C. Edward Lan) *Airplane Aerodynamics and Performance*. These texts are used by universities and aerospace companies, worldwide, and are published by DARcorporation. In his later years, he wrote *Roskam's War Stories and Lessons Learned in Aircraft Design*, also published by DARcorporation.

Dr. Roskam was actively involved with over 400 aircraft design and analysis projects at DARcorporation during the last 31 years.

Our condolences go out to his wife Janice Thomas Barron.

[Dr. Roskam's Obituary](#)

[Tribute Video To Dr. Roskam](#)