



2026-2027 CAD Challenge

Beyond the Competition

Great robotics and drone teams solve more than problems on the field. They also find better ways to organize, transport, manage, prepare, and showcase everything that makes their team successful. In this challenge, your team will identify a real need in your robotics or drone experience and turn it into an engineered solution using CAD and 3D printing. Your solution could address any aspect of your team's experience outside of the competition robot or drone. Explore ideas, build a prototype, test it, and improve it. **Design something that supports your team—not your robot or drone.**

Grade Levels	Programs	Submission Type
Elementary School/12U Middle School/15U High School/19U College	RECF Engage RECF Achieve RECF Inspire ADC ADC Pro	Documentation Portfolio CAD Files

Prizes: Five finalists will be featured on the RECF.org website, and a winner will be chosen from among those teams. The 1st place winner at each grade level will receive an invitation to the 2027 RECF World Championship in St. Louis. The invitation is specific for the winning team and the winning team's program. The registration fee is the responsibility of the winning team.

2026-27 CAD Design Challenge - Judging Rubric

This rubric will be used by RECF Online Challenge judges to assess all eligible submissions after the submission deadline. Each criterion will be scored from 0 to 5 points. Finalists and winners will be recommended by volunteer judges based on their scores. *RECF staff will make the final determination of awardees at their sole discretion, with consideration given to volunteer judge recommendations and the minimum entry requirements.*

Criteria	Expert 4-5 Points	Proficient 2-3 Points	Emerging 0-1 Points
Completeness of the Portfolio	All required components of the portfolio are present and complete, including documentation of the problem, research, design concepts and evaluation, final design prototype, testing and improvements and final design analysis.	Most required components are present and complete. One or more components may be missing or incomplete.	Several required components are missing or incomplete making it difficult to understand the team's design process and final solution.
Documentation of the Engineering Design Process	Every step in the engineering design process is complete and thoroughly documented.	The engineering design process is documented but some steps or design decisions may be incomplete or lack detail.	The engineering design process is not well documented. Several steps are missing or incomplete.
Technical Drawing	A technical drawing of the final design is included. The drawing clearly communicates appropriate views, dimensions, annotations, and other necessary technical information.	A technical drawing is included but some views, dimensions, annotations, or other technical information may be incomplete or unclear.	There is no technical drawing or it lacks many components or dimensions needed to communicate the design clearly.
Creativity and Originality	The final design represents a creative and original solution to a real world problem or opportunity and enhances the team's overall experience. The design demonstrates thoughtful application of CAD and engineering.	The final design addresses a team need and includes some creative or original elements. The connection to improving the team's experience may need more development.	The final design does not clearly address a real team need, lacks originality, or does not demonstrate how it improves the team's experience.
Prototype	The prototype uses 3D printing manufacturing techniques and demonstrates the final design. It is complete, well constructed, and shows evidence of testing and meaningful improvements based on what the team learned.	The prototype uses 3D printing manufacturing techniques but testing, improvements, or the quality of the finished prototype may be limited.	The prototype was not created using 3D printing technology or does not adequately represent the final design.