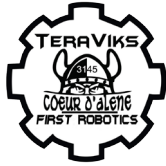




Students Success Using GraphiteTM



Coeur d'Alene High School's FIRST Robotics Competition Team 3145, used Ashlar-Vellum GraphiteTM precision CAD software to design and build their award winning robot.

Better known as The TeraViks, the team of 19 students worked together, mentoring each other as they designed, fabricated and demonstrated their 118 pound robot for the competition. From concept to competition in six weeks, the students built an entry that missed first place by just one goal and took home the *Xerox Creativity Award* for their Pacific Northwest region.

This year's "Ultimate Ascent" challenge had two primary tasks. The first was scoring points by shooting disks at various goals. Senior Matthew Induni described the shooter arm as "a double-decker rectangle where the Frisbees load on the top rail and slide down a hole. Along that bottom rail a pneumatic system sucked in the Frisbee, engaged the spinning wheels and shot it out."

The second task was climbing a 90-inch tower in three levels at 30, 60 and 90 inches. Senior Sean Palmer described the climb: "At the corner of the pyramid we would reach out with our claw and grab the first rung and pull in so that it tilted our robot right up parallel with the leg. We had a pair of hooks on pneumatic cylinders that would come out and hook on. Then we could release with our claw and reach up to the next rung and repeat that to the top."

Team coach, Brian Induni and co-captain, Matthew Induni talked about the advantage of using Graphite to get their ideas down quickly, and how other modeling programs made this difficult to do. Graphite's easy learning curve was of extreme importance to the team, as senior, Garrett MacDonald expressed:

"We have six weeks to build our product start to finish from concept to product. The main thing with CAD programs that we've had trouble with in the past is just learning how to use them and actually get it from design to product. So Graphite was super useful this year, just being able to throw the lines down and building the parts. So that was great."

Adult mentor, Marty Mueller offered not only his time, but his shop to the students to machine the parts and build the robot. He told us:

"The work flow in my shop where the kids build parts is pretty streamlined to go directly from appropriate pieces of the Graphite file that we've built, exported as either .dwg or .dxf into my CAM program. And the kids were responsible for doing all of that on all of the parts that they built. In the space of an hour I could teach them enough about Graphite to be fully functional."

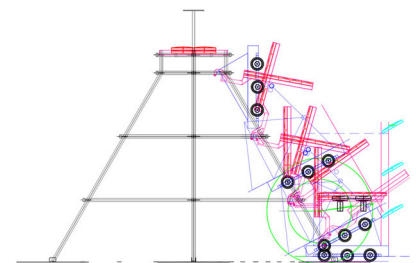
These 19 enthusiastic students not only developed engineering and marketing skills, but also learned about beam deflection, statics and strength of materials, troubleshooting and public speaking. They used their passion for design and fabrication to create an award winning solution.



FRC Team 3145 TeraViks from Coeur d'Alene High School, Coeur d'Alene, ID.



RoDel, the TeraViks' winning robot.



Checking the design of the climbing mechanism with the requirements of the competition.

Background/Contact

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