

# Team Stealth

## What is Formula High School?

Formula High School is a Technology Education program that is offered at schools all around the state and even one school in Indiana. The participating schools are Racine, Green Bay Preble, Green Bay Southwest, Ashwaubenon, West Depere, Grafton, Shawano, Sheboygan South, Waunakee, Waukesha, and New Castle Indiana. The program was started in the 08/09 school year, which was the prototype year. The program was started by the Technology Education teachers Jeremie Meyer and Mike Besel. They wanted to teach a class that would allow students to use all of the knowledge they have gained in other classes to make one complex vehicle.



**The Mysterian M5**

In the prototype year, the students chose to build a car that was manufactured by Sugar Grove Custom Cars. They chose the Mysterian M5 open wheeled race car. The instructors came up with a comprehensive list of rules that made it possible to keep the cars safe and would be finished in the allotted amount of time. Some major rules are that all students must follow the CAD drawing for bracing and that there are no engine modifications allowed. Other requirements were that we

use 1½” square tube for the bottom of the chassis and fourteen gauge steel tubing for the bracing. The roll bars were provided for us.

At the end of the school year, all of the teams from the different schools meet up at Road America racetrack. This is the most rewarding part of the course. We get to put our machine to the test against everyone else's car.



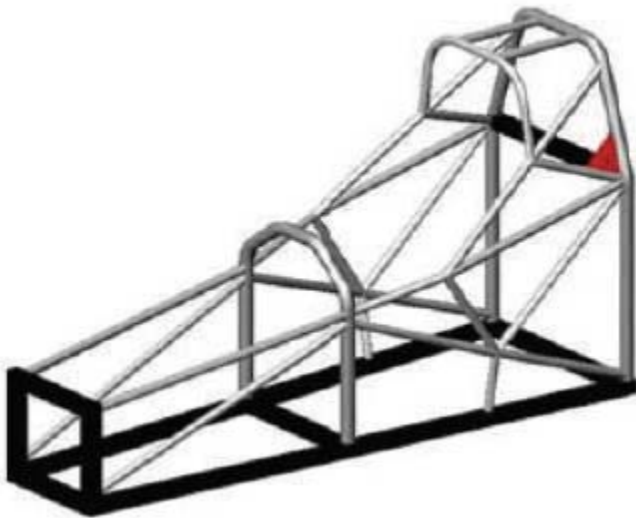
## The Team

Our third hour team consists of four seniors that attend Preble High School. Brian Janus (far left) has taken the Introduction to Engineering and Design (IED), Advanced Engineering and Design (AED), Civil Engineering and Architecture and Engineering Design and Development (EDD) courses. He focuses on the computer work such as team updates and designing parts of our car on the AutoDesk program. He also took part in measuring and cutting parts of our chassis as well as helping lay up the fiberglass mold. Devan Downey (middle left) has taken the Small Engines, Fabrication Restoration, IED, AED, EDD and a Research and Development (R&D) courses. Things that he has done for the team consist of welding a large part of the chassis, design the throttle and brake mechanisms, cutting and trimming the new body mold from our friends at Fiberglass Solutions. Brendan Taylor (middle right) has taken the IED, AED, Residential Construction, Woodworking, Advanced Woodworking and Printing Processes. He helped with laying up and trimming parts of the fiberglass mold and helped with cutting and, after being taught how to weld, he helped with some welding of the chassis. Matt Rentmeester

(far right) has taken IED, Introduction to Technology and EDD course. Matt worked on lathing and mounting of the master cylinder for the brake mechanism and was also taught how to weld so he could take part in the assembly of the chassis. He also helped lay up cut and trim parts of the fiberglass mold.

## Our car so far...

For Formula High School each team is required to build the same chassis for safety reasons. The chassis was made up mainly of 1½” fourteen gauge steel tubing. We also purchased two roll bars which were in the required design.



Once the main chassis was completed we started on building the front mount for the axel, break system, and battery. To do this we bent 1½” steel tubing into a nose shape where the battery would be mounted. From there we designed the break system and using the water jet at NWTC (a local technical college) cut out both sets of pedals. The pedal mounting took some time to finish because we wanted to position it at the most comfortable spot for our teammates.

After that we moved the steering column and “dash” components. We used the same pieces from the cars of the previous year to keep down costs and save time. Behind the steering wheel we mounted an LED light which will laminate when the power is on. There is also a “kill switch” in easy reach of the driver, which would cut all power in the car in case of an emergency.

Another Formula High School requirement was to have an aluminum firewall between the driver and the engine. We build both the firewall and the seat out of this idea. For our car body we were actually donated a whole new body from Fiber Glass Solutions were they have been getting the bodies for many years. Our team went in and assisted the shop owner

in creating our three part fiber glass body which consists of a nose cone, cockpit, and tail cone. The body was then taken back to school to be trimmed, sanded and then mounted to the car.



## Improvements

In order to improve our car from years past we have focused on trimming the overall weight, as well as distributing it more effectively. To do this we have moved main components such as the battery from behind the seat to the uppermost front of the car. To lessen the weight we have invested in an entirely new differential, with help from one of our sponsors Kaplan Automotive. This differential also allows more power to the outside wheels while cornering and cuts it to the inside wheels reducing slipping which should allow us to enter and come out of the turns faster than other teams. For the backend we incorporated angle iron to retain the overall strength but reduce the weight versus using just 1 ½" steel tubing. The seat and firewall have also been redesigned with lightweight aluminum. We have dropped down the steering by approximately six inches in hopes to gain more torque through the corners. Throttle and brake mechanisms have also had to be modified. They are both more appealing and weigh slightly less than last year's car.