Risk Assessment
Safety Plan

Project information:

Pop-Up Classroom	November 15, 2019
Name of Project	Date of submission

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Faculty mentor	Phone Number	e-mail
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I. Project description:

Our design focuses on bringing an enjoyable, productive, and collaborative classroom experience outside. Through the process of generating several different ideas, our team eventually selected a design that was based upon a towable trailer. This design would perform excellently across multiple types of terrain, and various amounts of incline, as the mobility aspect is delivered by the vehicle that is towing the classroom. The design features bench seating around the perimeter of the unit, such that the "class" is facing inward toward each other. The middle of the unit will also have tables for the "students" to have workspace. The middle of the unit will also have a limited number of seating intended for an "instructor" to use. The front of the unit will feature a projector screen, powered by a battery where a user can connect their electronics to display to the "class". The unit will also enable wifi connectivity through the use of a provided hotspot. The design will also feature an online portion so that pop-up classroom units can be reserved and ordered online.

II. Describe the steps for your project:

Apply the shock-absorber to the trailer system.
Determine the measurements for the drawers and order them custom made, measure out an area to store the battery power.
Measure and trace out the necessary dimensions for covering the trailer, account for an opening at the base for the drawers.
Use a saw to cut out the material at the specified dimensions for covering the trailer and producing the seats, roof, and pillars.
Determine the pc pipe network needed to go through the cart for wires, secure it to the base floor of the cart.
Cut rows of openings for ventilation on the side where the battery will be located.
Affix the wood to the trailer using wood glue, wood screws, zip-ties, or whatever is needed for a secure connection.
Insert pillars for structural integrity between and around the drawer and battery area. Affix with wood glue.
Use wood screws to secure a hinge to the wood panel acting as the door to the battery.
Secure a velcro strip to the door and base frame to ensure a secure but removable fit.
Run the wires through the pc piping starting at the battery and ending before it exits the battery/drawer compartment.
Create the seating ledges around the edges of the trailer, secure them to the base frame using wood glue.
Test the security of the seats by adding increasing amounts of weight in the form of dumbbells.
Mill out a divot for the placement of the pillars around the edges of the trailer frame.
Secure the pillars with wood glue.
Test the strength of the pillars using pulling and pushing forces from the students. Have another student available to assist in case a pillar falls over towards the student testing.
Affix the pc pipe to the insides of the pillars until it reaches the top.
Cut out and assemble the wood frame for the roofing on an elevated platform.
Lift the roofing platform the rest of the way upwards onto the pillars and secure using wood screws.

III. Given that many accidents result from an unexpected reaction or event, go back through the steps of the project and imagine what could go wrong to make what seems to be a safe and well-regulated process turn into one that could result in an accident. (See examples)

The biggest risks will come from the physical assembly of the pop-up classroom unit. Many power tools such as saws, drills, and screwdrivers will be vital in properly assembling the design. A careless worker could easily injure themselves while using a saw or any of the other power tools. The trailer will also be heavy and bulky. Carelessness could result in a worker getting caught

under the trailer and potentially suffering a dangerous amount of weight to a part or all of his/her body. The electrical aspect of the pop-up classroom also poses a potential danger. Great care will need to be taken while working with the battery, and wiring different aspects of the unit together.

Electrical Aspects: There is always a risk of electrocution when dealing with electrical components.

Power Tools: Power tools come with the risk of cutting or impaling the users body if the are mishandled.

Hand Tools: Screw Drivers, Socket Wrenches, Hammers and other hand tools run the risk of injury similar to using power tools

Wood material: Splinters, being cut or bruised, head injuries

Wood glue: Glueing hands together and consuming glue are main concerns of glue users

Lifting the roof: Roof falling on someone, cuts buy edges of the roof

Trailer Usage: high speeds, can cause instability and lose control

Shock Absorber: Shocks falling off, hand injuries while assembling

IV. Perform online research to identify any accidents that have occurred using your materials, equipment or process. State how you could avoid having this hazardous situation arise in your project.

A plethora of examples with table saws and skill saws exist. The safest procedure to avoid an accident using these tools is to cut in a very controlled environment. This includes cutting on a very stable surface, making planned, deliberate cuts, using utmost caution to avoid putting any parts of the body in the path of the saw. Accidents involving electrical wiring are also very frequent. Avoiding accidents with electrical wiring includes: wearing protective gloves, wearing safety glasses, and having a fire suppression system nearby at all times when working with electrical systems. Hands and other parts of the body will be kept free from free-moving mechanical parts whenever possible.

V. For each identified hazard or "what if" situation noted above, describe one or more measures that will be taken to mitigate the hazard. (See examples of engineering controls, administrative controls, special work practices and PPE).

Electrical Aspects: Insulating non conductive clothing material will be worn to prevent electrical accidents

Power & Hand Tools: Proper eye, head, hand, and body protection clothing will be worn when using tools while also another group member is present

Wood material: Protective clothing and adequate tool station for wood cutting and related operations while also having another group member present

Wood glue: Protective hand gloves will be worn to prevent glue accidents

Lifting the roof: Strong and skilled personnel will be present for heavy lifting and other related tasks

Trailer Usage: There will warning label including max velocity and other pertinent performance specifications

Shock Absorber: Use the proper tools and be sure that the trailer used as a base is stationary when assembling the shocks

VI. Rewrite the project steps to include all safety measures taken for each step or combination of steps. Be specific (don't just state "be careful").

While wearing the proper safety attire, fix the vehicle into a stationary, safe and secure workable position.

Apply the shock-absorber to the trailer system.

Determine the measurements for the drawers and order them custom made, measure out an area to store the battery power.

Measure and trace out the necessary dimensions for covering the trailer, account for an opening at the base for the drawers.

Use a saw to cut out the material at the specified dimensions for covering the trailer and producing the seats, roof, and pillars.

Determine the pc pipe network needed to go through the cart for wires, secure it to the base floor of the cart.

Make sure the area of placement for the battery is open and no unintended objects will be in the way of cutting.

Cut rows of openings for ventilation on the side where the battery will be located.

Affix the wood to the trailer using wood glue, wood screws, zip-ties, or whatever is needed for a secure connection.

Insert pillars for structural integrity between and around the drawer and battery area. Affix with wood glue.

Use wood screws to secure a hinge to the wood panel acting as the door to the battery.

Secure a velcro strip to the door and base frame to ensure a secure but removable fit.

Make sure no electrically conductive material is worn

Run the wires through the pc piping starting at the battery and ending before it exits the battery/drawer compartment.

Create the seating ledges around the edges of the trailer, secure them to the base frame using wood glue.

Clear the area around the seating arrangement of debris before the beginning of testing.

Test the security of the seats by adding increasing amounts of weight in the form of dumbbells.

Make sure the proper equipment is on and the worker(s) are fully focused.

Mill out a divot for the placement of the pillars around the edges of the trailer frame.

Secure the pillars with wood glue. Have another student available to assist in case a pillar falls over towards the student testing.

Test the strength of the pillars using pulling and pushing forces from the students.

Affix the pc pipe to the insides of the pillars until it reaches the top.

Cut out and assemble the wood frame for the roofing on an elevated platform.

With the appropriate personnel lift the roofing platform the rest of the way upwards onto the pillars and secure using wood screws.

VIII. List emergency response contact information:

- Call 911 for injuries, fires or other emergency situations
- Call your department representative to report a facility concern

Name	Phone Number	Faculty or other COE emergency contact	Phone Number
Dr. Shayne McConomy	(850) 410-6624		
Dr. Jerris Hooker	(850)410-6463		

IX. Safety review signatures

- Faculty Review update (required for project changes and as specified by faculty mentor)
- Updated safety reviews should occur for the following reasons:
  1. Faculty requires second review by this date:
  2. Faculty requires discussion and possibly a new safety review BEFORE proceeding with step(s)
  3. An accident or unexpected event has occurred (these must be reported to the faculty, who will decide if a new safety review should be performed.
  4. Changes have been made to the project.

Team Member	Date	Faculty mentor	Date

Report all accidents and near misses to faculty mentor.