MSD Project Risk Assessment Template

ID	Risk Item	Effect	Cause	Likelihood	Severity	Importance	Action to Minimize Risk	Owner
	Describe the risk briefly	*What is the effect on any or all of the project deliverables if the cause actually happens?*	*What are the possible cause(s) of this risk?*			*L*S*	*What action(s) will you take (and by when) to prevent, reduce the impact of, or transfer the risk of this occurring?*	*Who is responsible for following through on mitigation?*
1	Materials are acquired too late	Prototype cannot be built and tested on schedule	Certain materials are not ordered on time	2	3	6	Begin to order parts within three weeks of (9/18/13) and follow up with supplier	Anthony
2	Design doesn't meet needs	Customer is unhappy, project failure	Engineering requirements are not adequately documented and not carried out properly	1	3	3	Reevaluate engineering requirements during all design reviews Get customer approval on specs after each review	Evan
3	Spend more than our budget allows	Unable to purchase necessary items	Overspending on unnecessary materials	1	2	2	Develop a Bill of Materials that is well under our given budget Budget Tracker (Deleo)	Anthony
4	Hole in concrete is deemed unsafe	Child could fall through	Inability to follow customer requirements	1	3	3	Pay close attention to the safety of the hole size relative to the rest of the base Check against playground standard after design drawings are done	Mac
5	Design is too hard to transport	Device becomes immobile defeating the purpose of improved sanitation	Not modular and/or too heavy	2	3	6	Research ways to make concrete more light and implement that into our design Research and test lighter aggregates Test multiple times and recreate	Joe
6	Base cracks under minimal load	Useless device	Lack of reinforcement	2	3	6	Obtain multiple reinforcement materials that increase tensile strength by November	Mac/Evan

ID	Risk Item	Effect	Cause	Likelihood	Severity	Importance	Action to Minimize Risk	Owner
7			Poor concrete mixture	2	3	6	Research ways to mix concrete and talk to concrete experts	Team
8			Cylinder testing does not adequately represent our design	1	3	3	Test prototype by 2nd week of February	Victoria/Evan/Joe
9	Too hard to assemble	Haitians won't want to use it and device will not be used for its intended purpose	Inefficient instructions Too complex of a design	1 1	3 3	3 3	Provide picture instructions that are very simple to follow Survey/Local interview by 10/15/13 Develop simple designs	Evan/Victoria
10	Not aesthetically pleasing to the Haitians	Haitians won't want to use device and then device will not serve to improve sanitation	Lack of research	2	2	4	Research through surveys/interviews with Haitians/people who have been to Haiti. (H.O.P.E.) Talk to Sarah, Pedro, Dr. Thorn (Haiti visitors)	Team
12	Team Member becomes very sick fails to come to meetings and class	Team becomes overwhelmed with the work that that person was in charge of	His/her responsibilities are pushed to the team	2	3	6	Document action items and responsibilities of each team member	Team
13	Mixtures are inconsistent and unrepeatable	Structural integrity is lost	Laziness, complexity, lack of respect for the scientific method	3	3	9	Document every quantifiable value for mixtures and measurements	Joe/Anthony
14	Lack of adequate tools in Haiti	Concrete is not mixed properly	Lacks compressive strength	3	3	9	Follow-up with Johnny about available tools. Research from Focus group	Evan/Anthony
15		Too much water is added	Concrete crumbles	2	3	9	Explicit picture directions that include simple warning signs and result of too much water.	Victoria

ID	Risk Item	Effect	Cause	Likelihood	Severity	Importance	Action to Minimize Risk	Owner
16	Cement is inconsistent with American Cement	Testing is done using Portland Type I/II	No access to Haitian cement	1	2	3	Sarah is bringing back some for us in January	Team
17	Finished base is too heavy	Haitian's do not want to move arborloo, defeating the purpose of sanitation	Lack of concrete weight research and testing. Not knowing Haitian & Donkey strength	3	3	9	Using weight of cylinder (4" x 8") square footage relate to full base	Team
18	No access to Soils Lab (Todd Dunn) CAST building	Unable to calculate compressive strength of each mixture and validate materials	Busy schedule in CAST lab/cylinder device (ASTM C39) is inoperable	2	3	6	We have set a time with the Dept. Head for 4 hours every Monday morning.	Joe
19	Problems in Mechanics lab (Dr. Gupta)	Lack of Tensile strength knowledge	Tinius Olsen Machine does not interface with our rectangular beam	1	3	3	Use weights to load beam to produce flexural strength	Joe/Mac
20		Cannot gain access to lab	Semester schedule does not allow for our usage	2	3	6	Anthony has contacted Dr. Gupta to gain access to the lab.	Anthony
21	Base does not interface with shelter	Arborloo is not useful without privacy	Lack of communication with Shelter team and minimal research on typical shelter geometries	1	3	3	Maintain contact with Shelter team, and add easily connectable pieces to the bottom of our base	Victoria/Evan
22	Handle Failure	Unable to carry arborloo easily	Handle breaks	1	3	3	Engineering analysis on the handle to material to ensure ample strength for the given load	Evan
		Unable to carry arborloo easily	Concrete fractures around handle	2	3	6	Use handle materials that can properly mate with concrete.	Evan/Anthony
		Unable to carry arborloo easily	Handle material corrodes	1	2	2	Use a metal material that will not rust or corrode from the elements	Evan/Anthony

ID	Risk Item	Effect	Cause	Likelihood	Severity	Importance	Action to Minimize Risk	Owner
23	Polystyrene used to build 3D mold too expensive	3D mold is not produced	No material to make build mold	2	3	6	Test 3D mold capabilities of "saucer" snow sled	Mac
24	Inconsistent aggregates	Mixture is not repeatable, base could fail	Too many large coconut pieces	2	2	4	Using ½" mesh for quality control	Mac
25	Inconsistent aggregates	Mixture is not repeatable, base could fail	Styrofoam pieces are not chopped enough or to the right size	3	2	6	Test styro balls and "take-out" containers to maintain a consistent way to re-size	Victoria
26	Sand in Haiti does not perform the same as U.S. sand	Mixture is not repeatable, base could fail	Larger/smaller grain sizes used in the mix	2	2	4	When Sarah comes back from Haiti in January with authentic cement, also bring back sand	Team
27	Selected Geometries do not support CR load	Arborloo fails	Concrete is too thin	2	3	6	Preliminary DDR with Dr. Ghoneim to discuss FEA (ANSYS) of 2 selected geometries	Joe, Evan
			Tensile reinforcement inadequate				Relate flexural strength to ANSYS models to select proper material	Joe, Evan
28								

Likelihood scale	Severity scale
1 - This cause is unlikely to happen	1 - The impact on the project is very minor. We will still meet deliverables on time and within budget, but it will cause extra work
2 - This cause could conceivably happen	2 - The impact on the project is noticeable. We will deliver reduced functionality, go over budget, or fail to meet some of our Engineering Specifications.
3 - This cause is very likely to happen	3 - The impact on the project is severe. We will not be able to deliver, or what we deliver will not meet the customer's needs.

"Importance Score" (Likelihood x Severity) – use this to guide your preference for a risk management strategy

Prevent	Action will be taken to prevent the cause(s) from occurring in the first place.
Reduce	Action will be taken to reduce the likelihood of the cause and/or the severity of the effect on the project, should the cause occur
Transfer	Action will be taken to transfer the risk to something else. Insurance is an example of this. You purchase an insurance policy that contractually binds an insurance company to pay for your loss in the event of accident. This transfers the financial consequences of the accident to someone else. Your car is still a wreck, of course.
Accept	Low importance risks may not justify any action at all. If they happen, you simply accept the consequences.