

Risk Item	ID	Effect	Cause	Likelihood	Severity	Importance	Action to Minimize Risk	Owner
Cannot get ProMetal binder	2	Test results cannot be directly related to ProMetal process	ProMetal wont provide binder or not given enough leadtime to provide it	2	2	4	Research alternative binders compatible with metal powders	Matt
Run out of ProMetal supplies	3	Cannot finish relating test results to ProMetal process	Careless with supply of powder/binder	1	2	2	Test with ProMetal powder/binder only when necessary, contact ProMetal to determine availability of extra supplies	Team
Project goes over budget	4	Cannot complete project	Parts are too expensive	1	2	2	Research alternate suppliers for parts	Team
	5	Cannot complete project	Design includes too many high price items	1	2	2	Utilize alternative designs using cheaper parts	Team
Cannot assemble the design	12	Cannot complete project	Interference between parts in design	1	1	1	Use 3D CAD modeling to ensure there are no interferences between parts	Nick
Lifting mechanism binds	13	Cannot create multiple layers of powder	Lifting screws not synchronized properly	2	3	6	Design lifting screws with timing belts to ensure synchronous motion	Nick & Chris
Motor is too weak to move build platform	14	Design is not completed, failure to satisfy customer needs	Insufficient research into motors	1	3	3	Review calculations to determine motor size	Nick & Chris
No motor control	15	No motor control	Wrong wiring	1	2	2	Research motor control	Chris
	16	No motor control	Control software not designed properly	1	2	2	Research motor control	Chris
Parts break	18	Cannot finish assembly, need to reorder/remachine parts	Poor design and insufficient analysis	1	2	2	Use FEA to analyze critical load bearing parts and design to avoid braekage	Nick
System cannot maintain accurate spreading depth	24	Cannot properly create test specimens	Deflection in spreader supports	1	2	2	Use FEA to analyze spreader supports and design to avoid large deflection	Nick
	25	Cannot properly create test specimens	Deflection in build platform and supports	1	2	2	Use FEA to analyze build platform and design to avoid large deflection	Nick
Binder is too weak to hold powder together	28	Difficult/impossible to evaluate effectiveness of design	Cannot get ProMetal binder, alternative binder sources not researched	1	3	3	Research and test alternative binders to ensure metal powder compatibility	Matt
Test specimen crushes when picked up	29	Cannot evaluate specimen under microscope	Binder hold strength is too weak	2	2	4	Handle specimen as little as possible, build on a plate to ease transfer	
	30	Cannot evaluate specimen under microscope	Rough handling when transferring specimen	2	2	4	Handle specimen as little as possible, build on a plate to ease transfer	
Cannot attach Ultrasonic Atomizer to powder trough	32	Cannot accurately spray binder, poor testing possibilities	Poor design of trough	1	2	2	Use correct material, lot of time spent on integrating binding application with rest of system	Matt
UA moves when being used	33	Cannot accurately spray binder, poor testing possibilities	Not attached correctly, poor design of trough	1	2	2	Use correct material, lot of time spent on integrating binding application with rest of system	Matt
Cannot Accurately control binder spray	34	Poor testing possibilites, part is not built correctly	Viscosity of liquid, not wired correctly	3	2	6	Testing and learning how to control UA	Matt