

3D PRINTER RISK ASSESSMENT FORM

<p>This form is used to assess the hazards and provide information about the controls associated with your 3D Printer.</p> <p>Once you complete this form, please submit form to your EH&S Department.</p> <p>A EH&S representative will contact you to schedule a time to review this form with you.</p> <p>The purpose of this review is to determine whether additional EH&S controls are warranted.</p>			
Building:		Room:	
Department:		Location within Room:	
3D Printer Contact Information (phone and email):			
Manufacturer/Make/Model:			
Serial Number:			
Asset Number:			
When Purchased:			
Installing Company:			
Company performing installation and calibration:			
Person(s) at risks (Check each one): Ensure that they receive the appropriate training and supervision prior to unsupervised machine operation.		<input type="checkbox"/> Undergraduate Students	
		<input type="checkbox"/> Graduate Students	
		<input type="checkbox"/> Staff	
		<input type="checkbox"/> Faculty	
		<input type="checkbox"/> Adjuncts	
HAZARD IDENTIFICATION			
Noise/Vibration			
Noise makes you raise your voice		Yes/N/A	
Use of hand held equipment		Yes/N/A	
Hand vibration		Yes/N/A	
Whole body vibration		Yes/N/A	
Other (Please specify)		Yes/N/A	
Thermal Hazards			
Burns, scalds, and other injuries by contact with hot objects		Yes/N/A	
Potential exposure to a hot working environment		Yes/N/A	
Other (Please specify)		Yes/N/A	
Hazardous Material Hazards			
Contact with or inhalation of harmful fluids, gases, mists, fumes, and dusts		Yes/N/A	
Fire and explosion		Yes/N/A	
Biological or microbiological hazards		Yes/N/A	
Thermoplastics and/or photopolymers (e.g., Polylactic Acid, Acrylonitrile Butadiene Styrene, PolyAmide)		Yes/N/A	
Support materials (e.g., phenyl phosphates)		Yes/N/A	
Reactive and/or highly combustible powder metals		Yes/N/A	
Batteries (e.g., lithium)		Yes/N/A	
Other (Please specify)		Yes/N/A	

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Mechanical Hazards	
Contact with moving parts	Yes/N/A
Accumulation of energy inside machinery	Yes/N/A
Crushing hazard	Yes/N/A
Shearing hazard	Yes/N/A
Cutting or severing hazard	Yes/N/A
Entanglement hazard	Yes/N/A
Drawing in or trapping hazard	Yes/N/A
Impact hazard	Yes/N/A
Friction or abrasion hazard	Yes/N/A
High pressure	Yes/N/A
Other (Please specify)	Yes/N/A
Ergonomics	
Unhealthy postures or excessive effort	Yes/N/A
Inadequate consideration of hand-arm or foot-leg anatomy	Yes/N/A
Neglects use of PPE	Yes/N/A
Inadequate lighting	Yes/N/A
Mental overload and underload, stress	Yes/N/A
Human error, human behavior	Yes/N/A
Inadequate design, location or identification of manual controls	Yes/N/A
Inadequate design or location of visual display units	Yes/N/A
Other (Please specify)	Yes/N/A
Radiation	
Lasers	Yes/N/A
Infrared, visible and UV radiation	Yes/N/A
Low frequency, radio frequency, microwaves	Yes/N/A
Other (Please specify)	Yes/N/A
Environmental Impacts	
Air Emissions	Yes/N/A
Biological Waste	Yes/N/A
Hazardous Waste (chemical)	Yes/N/A
Non-hazardous Waste	Yes/N/A
Recyclable Waste	Yes/N/A
Universal Waste (e.g., batteries, bulbs)	Yes/N/A
Wastewater	Yes/N/A
Other (Please specify)	Yes/N/A

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RISK ASSESSMENT AND CONTROLS																		
<p>Risk Rating = Consequence x Likelihood</p> <table style="margin-left: auto; margin-right: auto; border: none;"> <tr> <td style="text-align: center; padding: 5px;">Consequences Values</td> <td style="text-align: center; padding: 5px;">Likelihood</td> </tr> <tr> <td style="text-align: center; padding: 5px;">None = 1</td> <td style="text-align: center; padding: 5px;">Not Applicable = 0</td> </tr> <tr> <td style="text-align: center; padding: 5px;">Minor = 5</td> <td style="text-align: center; padding: 5px;">Rare = 1</td> </tr> <tr> <td style="text-align: center; padding: 5px;">Moderate = 10</td> <td style="text-align: center; padding: 5px;">Possible = 2</td> </tr> <tr> <td style="text-align: center; padding: 5px;">High = 20</td> <td style="text-align: center; padding: 5px;">Likely = 3</td> </tr> <tr> <td></td> <td style="text-align: center; padding: 5px;">Certain = 4</td> </tr> </table>							Consequences Values	Likelihood	None = 1	Not Applicable = 0	Minor = 5	Rare = 1	Moderate = 10	Possible = 2	High = 20	Likely = 3		Certain = 4
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<p>Detail the Control measures required to address the risks applying the following Hierarchy of Controls:</p> <ol style="list-style-type: none"> 1. Elimination (Is it necessary?) 2. Substitution 3. Isolation (Restrict access) 4. Engineering (Guarding, redesign) 5. Administration (Training, SOPs) 6. Personal Protective Equipment (PPE) (gloves, coveralls, respirator) 																		
Hazard	Consequences	Consequence Value	Likelihood	Risk Rating	Controls	Controlled (yes/no)												
<i>Example: Thermal</i>	<i>Burn hand when touching hot object generated by 3D Printer</i>	5	2	10	6 – Heat resistant gloves	Yes												
APPROVAL																		
<p>I am satisfied that the hazards associated with this piece of equipment have been identified during this process and that the risks are not significant and/or are adequately controlled by one or more of the Hierarchy of Controls. Also, I certify that resources to implement the recommended controls will be provided by the department.</p>																		
Department Representative (Please Print):																		
Department Representative (Signature):																		
Title:																		
Date:																		