



2027 PROPOSAL GUIDELINES

Microgravity Neutral Buoyancy Experiment Design Teams



Title of Design

Design Challenge Addressed

Team Name

Optional Team Logo

Academic Institution Name

Address

Team Contact

Student Name

Email Address

Concept Video Pitch

Unlisted YouTube Video Link

Team Members

(Please list ALL team members. No more than 2 former Micro-g NExT team members per team. Identify former Micro-g NExT team members with an asterisk. All team members must be US citizens or Legal Permanent Residents (LPR))*

Team Member Name – Role

Email address – Academic year/Academic major

Team Member Name – Role

Email address – Academic year/Academic major

Team Member Name – Role

Email address – Academic year/Academic major

Team Member Name – Role

Email address – Academic year/Academic major

Faculty Advisor

Faculty Name

Email Address

Faculty Advisor Signature

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1. Introduction

Microgravity Neutral Buoyancy Experiment Design Teams (Micro-g NExT) challenges undergraduate students to design, build, and test a tool or device that addresses an authentic, current space exploration challenge. Micro-g NExT is offered as one of several student challenges and competitions provided by NASA's Office of STEM Engagement (OSTEM). All OSTEM student challenges and competitions are designed to prepare tomorrow's aerospace workforce through skill development, hands-on engineering design protocol, test operations, industry and community outreach, and unique workforce development opportunities. Micro-g NExT test operations are conducted in the simulated, reduced gravity environment of the Neutral Buoyancy Laboratory (NBL) at NASA's Johnson Space Center. Professional NBL divers will test the tools and students will direct the divers from the Test Conductor Room of the NBL facility. Micro-g NExT provides a unique opportunity to contribute to NASA's missions.

This document serves as a reference to assist potential Micro-g NExT participants in completing requirements to submit a proposal. Potential participants should also review the eligibility requirements for Micro-g NExT at the website <https://go.nasa.gov/micrognext>.

2. Eligibility

Each prospective Micro-g NExT team member must meet all the following requirements:

- Currently enrolled as an undergraduate student at an accredited U.S. institution of higher learning (junior college, community college, college, university).
- At least 16 years old before arrival in Houston.
- U.S. citizen or legal permanent resident.

Additionally, each team must meet all the following requirements:

- Have a supervising faculty member from their accredited U.S. institution of higher learning.
- All primary team members, including faculty advisor, must attend the orientation, preliminary design review, test readiness review events, and Test Week.
- Primary team members may only participate with one team in the same Micro-g NExT challenge.
- Teams may not have more than two former Micro-g NExT team members per team.

Other considerations:

- Teams can consist of multiple institutions collaborating in the same challenge.
- Team make-up should include an interdisciplinary aspect of any academic study area.
- Teams may receive support from university students of any level, faculty members, professional consultants etc., however, only primary team members that meet eligibility requirements may participate in Test Week activities at NASA Johnson.
- During Prototype Test Week, up to six primary team members and one faculty advisor will be allowed to travel to NASA Johnson. Number of team members allowed is subject to change.
- Only one proposal should be submitted per team.

3. Letter of Intent

Teams can submit an optional letter of intent by October 6, 2026, indicating their intention to submit a written proposal. The letter of intent should follow the format below and be submitted as an email. Send the email directly to jsc-reducedgravity@nasa.gov. ***Teams may still submit a proposal even if they do not submit a letter of intent.***

The letter of intent should provide:

- The Team Lead's contact information – this should be a **student** team member.
 - Include: name, email, academic year, academic major.
 - Sample: John Doe, JDoe123@instituiton.edi, Sophomore, Mechanical Engineering.
- The academic institution your team represents. If your team is a multi-institutional team, list all participating institutions and designate a lead institution.
- Selection of the 2027 Micro-g NExT challenge.
- State: "Micro-g NExT Challenge Letter of Intent" in the subject line.

4. Concept Video Pitch

The following guidelines outline the content your concept video pitch should include. The video must be submitted and linked on the cover page of the proposal for full selection consideration.

- Note: a working prototype **is not** required for this video.

a. Concept Requirements

The video can be as simple as an explanation on a dry erase board or the demonstration of a mock-up. However, every video must include/explain the following:

- Institution Name.
- Team Name.
- What is your idea/concept?
- How does it meet the requirements? (Please answer this with a brief sentence that is an overall summary)
- How does your idea advance space exploration?

b. Format Requirements

- Needs to be 1 minute or less in duration.
- Must upload to YouTube using an **unlisted** setting so that only those with the specific URL may view the video.
 - Video title format: School Name_Team Name_2027 Micro-g NExT Concept Video
- Do not include any music, images, or videos that are copyrighted.

5. Written Proposal Tips

The following tips are from Technical Reviewers and will aid you in writing your proposal:

- Start your design description with an overview of your design and a visual of the entire assembly. Then, break it down into components and functionality. Explain all pertinent details to help reviewers better understand the design.
- Include technical drawings in an appendix and not in the main body of the proposal.
- Verify the CAD files you submit are the right file types. Send your CAD files in .IGES or .STP format.
- Use third person throughout the document. This is a best practice for all technical documents.
- Address all sections of the proposal outline – both technical and outreach.
- An abstract is a summary of the entire document, not a summary of the challenge background or individual device components. Explain why this challenge exists and how your device is meeting the purpose and helping further spaceflight missions.

6. Proposal Requirements

- Each team must submit one electronic copy of an original proposal on the appropriate Micro-g NEXt Challenge opening via NASA STEM Gateway by **October 27, 2026**.
- Each proposal must be submitted in a three-section format containing the required sections in the following order: Technical, Industry and Community Engagement, and Administrative.
 - The Technical section shall not exceed 12 pages.
 - All information on the title page must be complete.
 - Figures and tables must be labeled and referenced within the text.

7. Technical Section

The technical section should include information on the design the team is proposing. This section is worth 75% of the overall score. Therefore, this section should include any information that a technical reviewer might find informative or instructive in understanding the aims and goals of the design. Evaluators ranking the proposal for its scientific and/or engineering merit will read only this section, so teams should be sure to address all relevant factors as listed below.

Abstract

The abstract should be a brief (up to 300 words) summary that touches upon the purpose of the challenge, the benefit to NASA and spaceflight, and a description of the prototype design being proposed.

Design Description

This section should include a description of the design being proposed, including the design and function of any mechanisms. Describe how the proposed design meets each of the challenge requirements by including a requirements compliance table explaining how each requirement is met. Be sure to include at least one of the following for your design: a sketch, drawing, model, or photo. All images/figures in the proposal should be numbered and include labels of the

components in view. Detailed images are preferred over long text descriptions. A CAD file(s) should also be submitted in .STP or .IGES format.

Manufacturing Plan

Describe the plan to create the proposed design. The manufacturing plan should include a Bill of Materials with details of the material selections and quantities, a manufacturing timeline, and a location where the parts will be manufactured and assembled.

Operations Plan

This section should include a detailed description of how the device will be tested in the NBL and any other testing facilities at NASA that are applicable to your challenge. Refer to the challenge description document for relevant facilities. List the test plan steps to highlight how the device is used and how you will conduct the operation to show that your device meets challenge requirements. Include how the device should be configured before, during, and after testing.

Safety

This section should describe any safety features and considerations. Include any unique hazards your device creates. Explain how you will mitigate those hazards, including testing and analysis that will be performed to prove it is safe to utilize in the NBL.

The NBL will be responsible for facility-related hazards (e.g., drowning, barotrauma), so you do not need to address these in your proposal.

Focus on hazards that your device creates. You may include hazards from manufacturing/fabrication of the device if desired, but you must address hazards associated with operating the device once it is built. Some common hazards to consider are pinch points, finger entrapment, sharp edges, structural/mechanical failure (consider what secondary hazards a mechanism/component failure could cause), stored energy, corrosion, and electrical issues.

Hazard Analysis Table

Include a Hazard Analysis (HA) table that outlines all identified hazards and their controls. Several approaches exist for creating HA tables. Any approach is acceptable if it is thorough and organized. An example is provided below. Utilizing a Risk Assessment Code matrix and identifying values for consequence and likelihood is optional.

Item Number	Hazard	Cause	Effect	Controls	Verification
1	Pinch Points.	Improper design. Improper user training. Lack of hazard labels.	Personnel injury. Equipment damage.	Hardware designed to minimize pinch points. Any pinch points that cannot be eliminated will be identified, addressed, labeled, and/or information relayed to the user.	QSAR (Quality/Safety Acceptance Review, to be done at the NBL by NASA personnel) document and documented in team TEDP and TRR.

					User training briefing will be completed prior to Micro-g NExT testing.
2, etc.					

Testing and Analysis

Functional Testing and Analysis

This section should describe testing and analysis characterizing the performance of the device. Describe any testing and analysis you have already done, including a brief procedure overview, results, and an interpretation of the results. Describe the testing and analysis you plan to do in later stages of hardware development and how these tests will be used to verify that the device meets the challenge performance requirements.

Safety Testing and Analysis

This section should describe testing and analysis that proves the device meets the challenge safety requirements and is safe to use in the NBL. Describe testing and analysis you have already done, as well as testing and analysis you plan to do in later stages of hardware development. Examples of testing and analysis that can be used to prove your device is safe for the NBL include finite element analysis (with appropriate loading and load directions), physical load testing on components, tests of specific safety features to show effectiveness, etc.

Technical References

Referenced works should be cited **in text** and in the References section. Standard APA format or a similar format should be used. Make sure that references are relevant and at least one half of the references come from research journals or other academic sources (textbooks, etc.).

8. Industry and Community Engagement Section

Teams participating in Micro-g NExT are expected to engage in their local communities. This should be a mixture of Industry and Community Engagement so long as at least two of each type of engagement is planned with the expectation of four or more total events. This section is worth 25% of the overall score.

Industry Engagement

Create a list of potential industry partners who align with project goals. Consider technical expertise, mentorship, skills development, certifications, or resources sought to advance project goals.

Your plan should include at least two of the following:

- Summarize mentorship arrangements your team plans to target with industry experts/partners.
- Identify skills development and certification opportunities your team members plan to seek with industry partners (manufacturing, welding, etc.).
- Explain how your team's industry connections would support team members' career goals.

- Identify potential internship, fellowship, apprenticeship, or career opportunities your team members plan to seek.
- Summarize the method your team will use to raise awareness about your NASA challenge participation with industry partners.

Community Engagement

Information contained in this section should focus on the outreach activities the team intends to implement as well as the target audience.

A plan is an organized way to achieve a specific objective. Random activities, even good random activities, do not constitute a plan. An engagement plan should have two major components:

- The **plan** – a description of the team’s objectives and goals, what activities are planned for the upcoming year, where and when the activities will take place, what audience you are targeting, etc.
- The **activities** – what will the team do when they get there? What materials will they refer to? What are the main points that they will make?

For maximum point value, the plan should include the following as appropriate:

- Meet the requirement for at least two community engagement events.
- Describe how your team will engage with local civic and community leaders.
- A description of the outreach audience (K-12 class or school groups, undergraduate research symposiums, university outreach to local schools, informal groups such as Boy/Girl Scouts, after-school clubs, church groups, etc.).
- Letters or agreements from institutions that accept your invitation to address their group.
- The team’s objectives for each activity.
- Specific plans for activities (strengthened by alignment to state or national standards to help a K-12 teacher, or use of age/grade-appropriate language to engage students during the activity).
- A press and/or social media plan.
- A connection between curriculum/activity and Micro-g NExT, a NASA Mission, or the team’s device.

9. Administrative Section

The administrative section of the proposal contains a letter of support from the team's institution, a statement of involvement from the faculty advisor, rights of use, evidence of a plan to acquire funding, etc. Although this section is not awarded a point value, exclusion of these materials may affect the team's overall ranking when compared to more complete submissions. Additional information may be required if selected.

a. Institutional Letter of Endorsement

This letter must be on the endorsing institution’s letterhead and must come from the institution’s president, dean of college, or department chair. It indicates that the team’s institution has

knowledge of the team's interest in participating in this activity and endorses the team's involvement. Teams will not be considered if their institution does not approve of their involvement.

b. Statement of Supervising Faculty

A statement of support from a supervising faculty member indicates a willingness to supervise and work with the team during all stages of the activity. Teams working without a faculty advisor will not be considered. The faculty advisor must also sign off on the cover of the proposal as evidence that he/she has seen the proposal and approves of the submission. The following statement should appear on the institution's letterhead and include the signature of the faculty advisor:

As the faculty advisor for an experiment entitled " _____ " proposed by a team of undergraduate students from _____ institution, I concur with the concepts and methods by which this project will be conducted. I will ensure that all reports and deadlines are completed by the student team members in a timely manner. I understand that any default by this team concerning any program requirements (including submission of final report materials) could adversely affect selection opportunities of future teams from their institution.

If your team is composed of students from more than one institution, submit the statement above from the lead institution. Additionally, supply a letter of support from a faculty member of each participating institution acknowledging they are aware of the participation of their student(s).

c. Statement of Rights of Use

These statements grant NASA, acting on behalf of the U.S. Government, rights to use the team's technical data and design concept, in part or in entirety, for government purposes. This statement is not required. However, teams with a Statement of Rights of Use will receive greater consideration in the proposal selection. If choosing to include these statements, **all team members and faculty advisors must sign.**

The statements read as follows:

As a team member for a proposal entitled " _____ " proposed by a team of undergraduate students from _____ institution, I will and hereby do grant the U.S. Government a royalty-free, nonexclusive, and irrevocable license to use, reproduce, distribute (including distribution by transmission) to the public, perform publicly, prepare derivative works, and display publicly any data contained in this proposal in whole or in part and in any manner for Federal purposes and to have or permit others to do so for Federal purposes only.

As a team member for a proposal entitled " _____ " proposed by a team of undergraduate students from _____ institution, I will and hereby do grant the U.S. Government a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States an invention described or made part of this proposal throughout the world.

d. Funding and Budget Statement

This section should include a simple columnar layout showing expected expenditures associated with the proposed design, such as materials, machining, operating, testing, shipping, etc. See *Table 1* below for an example. It is imperative teams anticipate all costs involved and actively work to seek funding. List potential sources for funding, which can include institutional grants, state Space Grant funds, corporate sponsors, etc. Participants are responsible for **all costs** associated with their participation in the Micro-g NExT challenge, including but not limited to development, travel, lodging, and food. Micro-g NExT will notify participants if any funding or student allowances become available.

Table 1 Micro-g NExT Cost Example

<u>Items</u>	<u>Cost</u>
Materials and Supplies	
3D Filament	\$85.00
Aluminum	\$75.00
Steel Rods	\$5.00
Pelican Case (29 x 18 x 11")	\$422.00
Manufacturing Costs	
Machine Shop	\$250.00
Travel	
Flights	\$4,500.00
Hotel	\$3,300.00
Ground Transportation	\$500.00
Food	\$800.00
Miscellaneous	\$375.00
Total	\$10,312.00

e. Parental Consent Forms

The parental consent forms provide consent for general participation and must be submitted for any team member under the age of 18 that will be accompanying the team to Houston. Please email the Micro-g NExT Coordinators at jsc-reducedgravity@nasa.gov for a copy of this form if needed. Travel related forms will be shared with all participants prior to travel to Houston.

f. Logo Use

Please supply NASA with high-resolution logo files, preferably as .png, .jpg, .eps, or .ai, for your institution(s). Please submit both versions in which your school logo and name are displayed horizontally and a version in which the logo and name are stacked vertically. You may also provide a public facing link to these files if they are publicly available. Provide in an addendum page.

10. Additional Requirements for Student Projects in the NBL

a. Tools

- All prototypes must be operable with extravehicular activity (EVA) gloved hands.
- Prototypes must not have holes or openings that would allow/cause the entrapment of fingers.

b. Electrical Power Requirements

We do not anticipate any solutions to this year's challenges needing power. However, the requirements below do stand if needed.

- Acceptable Power Sources:
 - 12VDC 25A power source supplied by the NBL.
 - Up to 30VDC or less marine grade AGM sealed batteries for devices being submerged underwater.
 - Up to 30VDC ROV batteries for devices not submerged underwater.
- The interface connection will consist of positive and negative female banana plug connections (see below).



Figure 1: NBL Banana Plug Receptacle (electrical power)



Figure 2: Example Banana Plug Connectors

- Tool must incorporate a verifiable barrier to electric shock. A 25A fuse should be incorporated into the cable from the project to the power supply.
 - It is highly recommended that the fuse be located near the power supply end of the cable.
 - Do not locate the fuse inside your design. Proper fuses must be visually verified, or the project will not be allowed underwater.
- Use adequate strain relief to help mitigate detachment of the umbilical (where it attaches to the vehicle). Ensure the strain relief does not interfere with the operation of the vehicle (e.g., block movement of a rudder).

c. Pneumatic Power Requirements

We do not anticipate any solutions to this year's challenges needing pneumatics. However, the requirements below do stand if needed.

- Student projects will be allowed to connect to the NBL's compressed air system:
 - Pressure – 125 psig.
 - NBL Shop Air Connector details:
 - Grainger: Coupler Plug, M(NPT), Item #1HLZ8, Mfr. Model #A73440-BG.
 - Note: female P/N is 1HLZ9.
 - Quick Coupler Body, (F)NPT, Steel Item #1HUK7, Mfr. Model #A73410-BG.
 - JSC Engineering will supply the umbilicals.

d. Other Requirements

- Environmental Condition – NBL Pool Use:
 - A totally submerged condition in water that contains a range of 0.5 to 3.5 parts per million of free chlorine.
 - Ambient temperature range: +82°F (27.8°C) to +88°F (31.1°C).
 - Some of the projects may be tested on the pool floor at a depth of 40 feet.
- Acceptable Materials for use in the NBL:
 - Allowable materials: typical engineering metal alloys (e.g., stainless steel, aluminum, titanium), plastics, composites, or soft good materials are acceptable for short-term testing in the pool.
 - Allowable lubricants, coatings, foam, or adhesives are shown in [Appendix A](#) and [Appendix B](#).
 - Other materials (e.g., gels) must be approved for use in the pool.
- Sharp Edges and Protrusions:
 - Due to the potential for personal injury to the diving support personnel, as well as damage to their EVA suits, the mockup components shall not contain sharp edges or be capable of cutting or puncturing items encountering them.
 - Avoid and/or protect the handler from pinch points and/or sharp edges.
 - The hardware shall be designed to specify manufacturing to remove burrs, break all sharp edges, and round all corners.
- Water Entrapment:
 - Mockups and hardware shall be designed with drain holes or geometry to allow the free flow of air and water as required to support submersion and removal to and from the NBL pool.
- Labels:
 - The hardware provided shall have labels as follows:
 - Mate/de-mate alignment marks, operation indicators, as required.
 - Caution and warning tags for hazard areas (pinch points, sharp edges, etc.) following NBL guidelines.

- Hardware identification.
- Additional safety labels may be requested following the Test Readiness Review.
- Loads:
 - The hardware must withstand normal handling or kickloads and not present a safety hazard.

11. How to Apply: NASA STEM Gateway

Proposals are submitted on [NASA STEM Gateway](#). Only one team member (preferably the Team Lead) will submit the proposal on behalf of the team. During this process, they will add all team members and the faculty advisor by entering their name and email address. We recommend team leads verify the best email address for their team members, particularly those who may already have profiles in STEM Gateway as the emails must match to be properly registered with the team.

To apply, use the search function to find the Micro-g NExT challenges for this current year. Select the challenge your team is proposing. Review the online description and instructions to complete the application process. Be sure all information is completed before submitting. No changes can be made after submitting. To confirm submission, check the submission status in your STEM Gateway profile.

12. Technical Scoring Rubric

Below is an **example** rubric that Technical Reviewers have used to score submitted proposals.

Criteria	Points	Comments
Abstract		
Please rate the overall quality of the abstract.	/5	
Design Description		
Was the design explained well?	/5	
Is each requirement sufficiently addressed in the requirements compliance table? 0.5 point for each requirement addressed.	/10	
Please rate the effectiveness of the sketches/drawings in explaining the design. Are all images/figures numbered and labeled? (0 if not included)	/5	
What is the likelihood this design will succeed if selected?	/5	
Please rate the overall fidelity of the design.	/5	
Please rate the quality of the manufacturing plan. Is a Bill of Materials included? Is a manufacturing timeline included? Is a manufacturing and assembly location identified? (0 if not included)	/5	
Operations Plan		
Please rate the quality of the test plan.	/5	
Safety		
Are safety concerns fully addressed?	/5	
Does the Hazard Analysis sufficiently identify and control all hazards? (0 if not included)	/5	
Was the functional testing and analysis plan explained well?	/5	
Was the safety testing and analysis plan explained well?	/5	
Please describe any safety concerns.	N/A	(Open ended question)
Technical References		
Are technical references provided and complete?	/5	
General		
Please rate this proposal as a technical document. (In terms of format, professionalism, ease of reading, etc.)	/5	
Any other feedback for the students.	N/A	(Open ended question)



13. Industry and Community Engagement Rubric

PROPOSAL SCORING RUBRIC	Lowest Score				Highest Score	Score	Comments
OUTREACH EVENTS ✓ Diverse list of events and activities planned. ✓ Includes projected audience type and number of participants. ✓ Detailed implementation plan. INDUSTRY ENGAGEMENTS ✓ List of potential partners and alignment with project goals. ✓ Assesses the team's professional development strategy.	1-6 points Only <u>one</u> outreach event or industry engagement is planned. OR Plan provides <u>no details</u> of implementation plan, projected audience, and number of participants. OR Plan provides <u>no details</u> of potential industry partners and how they will align to project goals.	7-13 points Minimum of <u>two</u> events are planned. Must be at least two events from each category (Industry or Community). Proposer provides <u>minimal details</u> of implementation plan, projected audience, and number of participants. AND/OR Proposer provides <u>minimal details</u> of potential industry partners and how they will align to project goals.	14-19 points Minimum of <u>three</u> unique events are planned with unique organizations. Must be at least two events from each category (Industry or Community). Proposer provides a <u>sufficiently detailed</u> implementation plan including a projected audience, and number of participants. AND/OR Proposer provides <u>sufficient detailed</u> list of potential industry partners and how they will align to project goals.	20-25 points Minimum of <u>four</u> unique events are planned with unique organizations. Must be at least two events from each category (Industry or Community). Proposer provides a <u>highly descriptive and relevant</u> implementation plan including a projected audience, and number of participants. AND Proposer provides <u>highly descriptive and relevant</u> list of potential industry partners and how they will align to project goals.			
Engagement Total Score							



Appendix A: NBL Materials List

NBL Approved Foam Material List

Material Designation	Manufacturer
DOW Polystyrene Highload 60 Grade Blue Foam (64 lb/ft ³ buoyancy)	Ryder Insulation Corporation
Last-A-Foam (20 lb/ft ³ buoyancy)	General Plastics Manufacturing Corporation

NBL Approved Coatings Material List

Product	Suggested Vendors
Carboline 139 (Paint)	Carboline Company
Carbomastic 15M500 and 890	Carboline Company
Dupont 25P	Briggs Weaver
Ethone M-0-N (Marking Ink)	
Ethone M-5-N (Marking Ink)	
Ethone M-9-N (Marking Ink)	
Hi-Solids Catalyzed Epoxy	The Sherwin-Williams Company
NSP 120	NSP Specialty Products
Plasite 7122 (Paint)	Wisconsin Protective Coatings Corp.
UT Plast Super (non-epoxy)	UTP Welding Technology

NBL Approved Lubricants

Material Designation	Manufacturer
Braycote 601	Castrol Specialty Prod.
Braycote 602	Castrol Specialty Prod.
Braycote 803RP	Castrol Specialty Prod.
Christo-lube MCG-117	Lubrication Tech. Inc.
Halocarbon 25-10M	Halocarbon Corp.
Halocarbon 25-20M	Halocarbon Corp.
Halocarbon 25-5S	Halocarbon Corp.
Halocarbon 25-5SI	Halocarbon Corp.
Halocarbon 27S	Halocarbon Corp.
Halocarbon X90-10MS	Halocarbon Corp.
Krytox 280 AC, 240 AC	Dupont
LOX-8	Fluoramics Inc.
Lubricant/Tef-Gel PTFE 9002-84-0	Utility Safety Systems Inc.
Mobil - 28	Mobile
SAF-T-EZE	SAF-T-EZE Div, STL Compound Corp
Tiolube 460 Dry Film Lubricant	Tiodize Co., Inc., Huntington Beach, CA
Tiodize Type II (Titanium Hard Coat)	Tiodize Co., Inc., Huntington Beach, CA
Tiodize Type IV (Tiodize Type I plus Tiolon X40 Teflon Coating)	Tiodize Co., Inc., Huntington Beach, CA

Appendix B: Previously Approved Materials

Acceptable Materials – Supplemental:

- a. Metal adhesive – Supreme 10HT from Masterbond.
 - i. Must be fully cured.
- b. Nylon – Prohibited from the standpoint of reliability for NBL hardware in terms of continuous or long-term submersion but should be acceptable for this application. We could have scrubbed this material from the “prohibited” list for the competition, but the prohibited part was strictly intended for the continuous use NBL hardware used for EVA training.
- c. Nitinol (Nickel Titanium) – approved.
- d. Loctite Epoxy Plastic Bonder – Can be used in the manufacture of the tool as long as it is cured before arrival at the NBL. If you want to use/apply it in the facility, then you would need to go through the process for approval, make sure we have the correct safety PPE and precautions, etc.
- e. The following are allowed into the NBL as long as they are fully dried and cured:
 - i. Krylon Enamel Spray Paint (purchased at Lowes Home Improvement).
 - ii. Painters Fine Tip Red Paint Pen (purchased at Walmart) (Oil Based).
 - iii. JB Weld (purchased at Lowes Home Improvement).
 - iv. Kingspan Insulation R10 Unfaced Polystyrene Foam Board Insulation (Purchased at Lowes Home Improvement).
- f. FOAMULAR 150 Extruded Polystyrene Insulation manufactured by Owens Corning (Purchased from Home Depot).

Link: <http://www.homedepot.com/p/Owens-Corning-FOAMULAR-150-2-in-x-4-ft-x-8-ft-R-10-Scored-Squared-Edge-Insulation-Sheathing-45W/100320352>