



ENGINEERING SAFE DESIGNS

Team What's All That Ratchet dedicates themselves to quality engineering and safety before our products go anywhere near our clients. Our mantra is to design and engineer safe products for a better tomorrow.

Our Functional Requirements

- 1) Safely and reliably lift the student from the ground.
 - Hydraulic foot pump to safely lift table
- 2) Transfer the student to a position appropriate for changing.
 - Removable mat for student
 - Straps to safely move student onto table
- 3) Ensure that the lifting mechanism can be easily manipulated so that changing supplies are within reach.
 - Lifting mechanism is a foot pump, allowing for free hands
- 4) Provide a mechanism that can adjust in size.
 - Table can be lifted to multiple heights via foot pump
- 5) The changing and transferring surfaces must be able to be sanitized frequently and thoroughly and should hold up through high levels of use.
 - Vinyl mat that is easily sanitized with bleach and water or cleaning wipes.
 - Plastic table top is easily sanitized with bleach and water or cleaning wipes.

Feel free to contact us at
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WHAT'S ALL THAT 
RATCHET



biomedical
engineering

WHAT'S ALL THAT 
RATCHET

We make changing
an uplifting experience.

Garrett Gros.Jardin Leleux.Shanna Connolly

Engineering safe products for a better tomorrow

WE PLEDGE OURSELVES TO SAFETY WITH CLEAN, SANITARY PRODUCTS.

WHAT'S ALL THAT
RATCHET

who are we helping?

Our team is designing a changing lift to assist in raising disabled children from low heights and to offer a convenient, hygienic surface for cleaning and changing the children. The lift is being designed for our client, the caregivers at a local elementary school, to be used in one of their classrooms. The design must suit students ranging in age from kindergarten to eighth-grade who attend the school.

making changing an uplifting experience

PROVIDING SAFE LIFTS

The first stage of our lifting process is through the use of an air mattress. The student will be placed on a vinyl mat atop an inflatable air mattress, which will lift to 19". At this point, the mat is transferred using its straps to a modified steel hydraulic table lift. Once the student is safely and securely atop the table, the aide can use the foot pump to lift the table to an appropriate changing height. After changing the student, the aide then follows a reverse process to safely lower the student to his or her original height.

PROVIDING A CLEAN SURFACE

Students will remain on a vinyl mat throughout the changing process. This custom made mat can easily be cleaned with traditional cleaning products and is durable enough for heavy use. The steel hydraulic lift has a walled high density polyethylene table top on which the student will rest. Once again, this surface can easily be cleaned with traditional cleaning products and is durable enough for heavy use. These materials are non-porous, so that any bodily fluids will not affect the usage and maintenance of our product.

DETERMINING OUR GOALS

- REDUCE PHYSICAL STRAIN ON THE CARETAKERS
- PROVIDE A SANITARY CHANGING ENVIRONMENT
- ACCOMMODATE FOR DIFFERENT HEIGHTS AND SIZES



REDUCING PHYSICAL STRAIN

With our design caretakers will no longer strain their backs while lifting students or hurt their knees while changing students on the ground.



SANITARY CHANGING

With our vinyl mat and high density polyethylene table top, students and caretakers will not be at risk of passing on pathogens during the changing process. These hygienic surfaces can be quickly and easily cleaned after each use.



SIZE ACCOMODATION

With our modified hydraulic table, the size of the students and height of the caretakers will no longer be an issue. The hydraulic table can lift to a height of approximately 3 feet. It is 2.5 feet in width and 6 feet in length.



WE KNOW THAT EVERYONE NEEDS A LIFT. THESE PEOPLE HAVE HELPED US:

Dr. R. Anderson, Elaine Horn-Ranney, Dr. W. L. Murfee, Dr. D. Rice, Chris Rodell, Peter Stapor, & Dr. C. Walker