

Case Study: Tianjin University - A Pioneer with the installation of 43 Green Fume Hoods and 27 Halo air filtration systems

PROJECT PROFILE:

Type:

Renovation

Industry:

Education

Location:

Tianjin, China

The Erlab Ecosystem:

(43) Erlab GreenFumeHood

Technology

(27) Halo Air Filtration Systems

Statistics:

1,500 square meters

1-story

March, 2016 Completion

Architect:

Tianjin Design Institute

THE SCOPE

Tianjin University planned to pioneer a Center of Excellence in Health Science complete with a full laboratory curriculum, introducing multi-disciplinary concepts spanning chemistry, biology and pharmacy that encapsulates an innovative approach to prepare students for careers in academic, industrial, commercial, or medical laboratories. Exceptional standards of safety and energy-efficient green technology were paramount motivators in this tight timeline renovation project, which is comprised of 3 multi-purpose general labs, 1 analytical lab, and 1 pharmacy lab, situated on the 1st floor of what was a primarily classroom-style teaching building.



THE CHALLENGE

The building that would house these labs was originally built as a large classroom-style teaching building around the turn of the millenium. The university felt that it was important to keep the esthetics of the building. Few services and utilities had been previously run to the building. On the upper (fifth) floor it was possible to install ducted fume hoods due to proximity to the roof and the ease of connecting to the mechanical systems in the ceiling. In contrast, the complex mechanical systems needed for installation of traditional ducted fume hoods to the first floor would have disrupted the flow of the architectural design, required a substantial redesign of the building infrastructure, and involved construction of a large, bulky, and intrusive mechanical system. High capacity fume hoods and proper air change rates were needed because many practical exercises involve chemical processes that emit chemical fumes or vapors. When designing the labs, it was also important to have multi-disciplinary, research-style teaching labs where a variety of subjects could be accommodated in a space-efficient laboratory environment. The university identified a fume hood manufacturer, TL Lab – Shanghai, to partner with Erlab in the design of a simple self-contained unit into which the filtration system could be easily integrated. The filtering fume hoods also needed to be flexible enough to accommodate a broad spectrum of practical chemical exercises taught in the same lab. The university, conscientious of the environment, emphasized high importance on not releasing chemicals into the air that would affect the neighborhoods nearby.

THE SOLUTION

Implementation of filtration fume hoods provided a solution that met the challenging design requirements of the university. Erlab's filtration technology was quickly and easily integrated into the TL Lab – Shanghai's custom fume hood design. These state-of-the-art custom filtration fume hoods provide a Green Chemistry infrastructure to the labs and heighten research awareness of Green Chemistry solutions at all levels of molecular medical and chemical science. Although the Tianjin Health Science program already teaches and utilizes Good Lab Practices, preventative Halo air filtration systems were installed to purify the laboratory air by capturing any fugitive emissions that may occur. The installation of the Halo air filtration system in the ceilings allowed the university to reduce their air-change-rates from 10 to 3 times per hour.

The Health Science Platform in Tianjin University is a worldwide leader in the use of GreenFumeHood Filtration Technology; and, with the installation of 43 filtering fume hoods plus 27 Halo ceiling air filtration units, this project is one of the largest globally to date. Erlab is committed to Tianjin University's desire to utilize and showcase Erlab's filtration technology as a viable method of keeping their students' safe and practicing green chemistry. To help support this initiative, Erlab installed educational elements into the labs to keep the students informed about safe fume hood practices as well as providing the service and maintenance of the filtration technology.

THE RESULT

- Tianjin university is the first in China to use the technological advancements of filtering fume hoods in their Health Science program.
- This new filtration technology is a showcase of Tianjin University's International Center of Excellence and provides a model for other entities throughout China and beyond.
- Green Chemistry is highlighted in the curriculum and incorporated into the laboratory infrastructure.
- Building design is preserved; Renovation time is cut substantially; Space use is optimized; Air-change rates are reduced from 10 to 3 per hour.



Erlab's state of the art Research & Development Laboratory relies exclusively on filtration

North America
+1 800-964-4434 | captairsales@erlab.com

China
+86 (0) 512 5781 4085 | sales.china@erlab.com.cn

France
+33 (0) 2 32 09 55 80 | ventes@erlab.net

Germany
0800 330 47 31 | verkauf@erlab.net

Italy
+39 (0) 2 89 00 771 | vendite@erlab.net

Malaysia
+60 (0) 7 3 555 724 | erlab@tm.net.my

Spain
+34 93 673 24 74 | ventas@erlab.net

United Kingdom
+44 (0) 1722 341 940 | salesuk@erlab.net

www.erlab.com

About Erlab

We provide safety, we protect your health

Erlab invented the ductless fume hood in 1968. With more than 50 years of experience in the field of chemical filtration and protection of laboratory personnel; we know the formula for safety. With Erlab, you will never have to wonder or worry if our products are safe. We build each one of the following 7 ingredients into our products, and without all of them, your health and safety will be compromised.

1 Erlab R&D Laboratory

The engineers and chemists in our state-of-the-art R&D laboratory understand molecular filtration. We are committed to designing products that are safe and of the highest quality, strive to improve our products, and continuously develop new products that provide greater protection in the laboratory.

2 Strict Safety Standards

We hold ourselves to the highest standard and adhere to the strict AFNOR NF X 15-211: 2009 filtration safety standard as endorsed by ANSI Z9.5-2012.

3 A Published Chemical Listing

It all begins here. Without this listing, we are not compliant with AFNOR NFX 15-211. Our in-house laboratory tests, as well as independent testing, to verify the retention capacity of over 700 chemicals for our filters.

4 Independent Testing

Erlab filters have been independently tested multiple times at various concentrations guaranteeing that our safety solutions all adhere to the strict performance criteria of the AFNOR NF X 15-211:2009 standard assuring that the emission concentration at the filter exhaust will always be lower than 1% of the TLV.

5 Application Questionnaire (Valiquet)

Our laboratory specialists will recommend the appropriate filtration fume hood, type of filter, and personalized advice.

6 Certificate of Validation for the chemicals used in the hood

A certified PhD chemist issues a Certificate of Validation with a list of the chemicals approved for use in the hood.

7 Our Safety Program

We back up our products 100%. This program includes your specialized chemical evaluation, validation of your hood upon installation, and a filtration safety specialist at your service to ensure that your hood is operating to its full potential.



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of innovation in filtration

