



# Project Profile

*Animal Cage Dumping and Sterilization  
Enclosure*

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# Project Overview

## **PROJECT OVERVIEW**

This project involved the design and fabrication of a specialized animal cage dumping station enclosure intended to support the sterilization and responsible disposal of reusable rodent cages. The primary driver for the system was to create an engineered device capable of facilitating controlled Clidox spray-downs, enabling cages to be safely routed into the standard waste stream instead of a hazardous waste stream—significantly reducing facility operating costs.

The unit was developed for a customer with strict ergonomic, contamination-control, and ventilation-limitation requirements, resulting in a highly integrated containment and filtration solution

## **PROCESS DESCRIPTION**

The operational sequence was designed to ensure safe bedding disposal, effective sterilization, and containment of chemical emissions:

### **Cage Placement:**

The operator places the reusable rodent cage inside the enclosure through a clear Lexan vertical sash, supported by gas-piston hinges for ergonomic lifting and lowering.

### **Bedding Disposal:**

The soiled bedding is dumped into a dedicated containment zone within the enclosure, feeding directly into a hazardous-waste barrel and liner to prevent environmental contamination.

### **Sterilization Cycle:**

The interior surfaces of the cage and its cover are treated using a Clidox spray-down, performed entirely within the containment envelope to protect operators from chemical exposure.

### **Cage Removal:**

Once sterilized, the cage is removed and routed into the facility's standard waste stream, avoiding costly hazardous-waste handling.

# Key Features and Design

## DESIGN & CONSTRUCTION

The enclosure was built from durable and cleanable materials chosen for chemical compatibility and long-term performance:

**Primary Structure:** High-grade polypropylene, offering excellent resistance to Clidox and other disinfectants.

**Operator Viewport:** A clear Lexan sash, vertically mounted and supported by gas pistons for safe and ergonomic access.

**Containment Geometry:** Full-height internal walls and a smooth interior accessible for routine cleaning.

## VENTILATION & FILTRATION SYSTEM

Due to the customer's inability to connect any equipment to the building's HVAC infrastructure, the design incorporated Erlab's self-contained, multi-stage filtration and recirculation system engineered for both chemical and allergen control.

## KEY FEATURES

- Rear Plenum with MERV 13 Prefilters:  
Captures particulates and provides initial airflow conditioning.

### Four Independent Fan Units:

#### Each fan module includes:

- Primary HEPA filtration for fine particulate capture
- Primary carbon filtration for Clidox adsorption
- Secondary, redundant carbon filtration for additional chemical-capture security

### Air Quality Performance:

The system was validated to ensure Clidox emissions remained below 1% of the TLV, even during peak spray-down activity.

### Containment Objective:

Maintain directional airflow that protects operators from both Clidox vapors and allergen release associated with rodent cage bedding.

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# Impact & Conclusion

## INSTALLATION & OPERATIONAL IMPACT

### Rapid Deployment

The unit was designed as a stand-alone, plug-and-operate enclosure, requiring no ductwork, construction, or facilities downtime. Installation was completed within minutes, allowing operations to continue uninterrupted.

### Cost Savings

By enabling cages to be safely redirected from the hazardous-waste stream to the standard waste stream, the system is estimated to yield > \$100,000 annually in cost savings, primarily through reduced waste-handling and processing expenses.

### CONCLUSION

This project successfully delivered a high-performance, ergonomically optimized, self-contained cage dumping and sterilization enclosure tailored to facilities handling reusable animal cages. The system provides:

- Robust chemical and particulate containment
- Safe Clidox application
- Effective allergen control
- Complete independence from building HVAC
- Significant operational savings

The result is a sustainable, compliant, and operator-friendly solution that elevates both workflow efficiency and environmental health standards.

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