



# Design Document: FroZone

**A fast-deploy waterproof bag that seals around refrigerators to protect them during floods**

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# FroZone

## FLOOD PROTECTION FOR COMMERCIAL REFRIGERATORS



WATERPROOF  
PROTECTION



VENTILATED  
AIRFLOW



BUILT TO  
PERFORM

### INSIDE THE BAG – VENTILATION CHIMNEY



Integrated mesh and powered ventilation allow internal air to rise and exit, preventing overheating and moisture buildup.



PROTECT.  
POWER.  
PRESERVE.

### HOW IT WORKS (DEPLOYMENT IN UNDER 10 MINUTES)

1 SLIDE UNDER



Slide the FroZone bag under the refrigerator.

2 TILT & POSITION



Slightly tilt the refrigerator and position the bag.

3 PULL UP & WRAP



Pull up the blue sides and wrap around the fridge.

4 ZIP THE TOP



Zip the top waterproof zipper fully to seal.

### COMPACT STORAGE



Folds flat and secures for easy storage.

### REAL-WORLD PROTECTION



### SIZES & OPTIONS

#### SMALL



Up to  
**32" W**  
x **32" D**  
x **72" H**

#### MEDIUM



Up to  
**52" W**  
x **32" D**  
x **72" H**

#### LARGE



Up to  
**78" W**  
x **32" D**  
x **82" H**

### GENERATOR / POWER CONNECTION



- Extension cord routes through a sealed port.
- Plug into an elevated outlet or generator when no ceiling outlets are available.

### FLOOD PROTECTION IN ACTION

1 FLOOD WARNING



A flood warning is issued in the area.

2 PLACE FRIDGE IN BAG



The fridge is placed into the much larger waterproof bag.

3 ROUTE POWER SAFELY



Extension cord runs to the top and plugs in to elevated power or generator.

4 VENTILATION WORKS



Vents at the top and sides allow airflow to prevent overheating.

5 SEAL IT TIGHT



The zipper is sealed tightly for waterproof protection.

6 FULLY PROTECTED



The refrigerator is fully secured inside the waterproof bag.

### WHY CHOOSE FROZONE?



**100% Waterproof**  
Heavy-duty, commercial-grade materials.



**Powered Ventilation**  
Prevents overheating and moisture buildup.



**Fast & Easy**  
Deploys in under 10 minutes.



**Built for Reliability**  
Protect what matters most when it matters most.



PROTECT YOUR EQUIPMENT.



KEEP IT RUNNING.



STAY PREPARED.

BE READY. BE FROZONE.

# Stakeholder Landscape

## Direct Operations

- Business Owners
- Employees

## External Services

- Insurance Adjusters & Brokers
- Commercial Landlords

## Regulatory & Macro

- NYC Dept. of Health (DOHMH)
- Regional Economy

# The Problem: Inventory Vulnerability



## Critical Disruptions

Flooding in prone areas disrupts critical storage conditions for food-service small businesses.



## Compromised Goods

Perishable inventory is lost due to contaminated water and loss of refrigeration from electrical failure.



## Financial Strain

Rapid spoilage leads to forced disposal, creating financial barriers to post-flood recovery.

**Key Insight:** These factors create immediate financial strain, making it difficult for businesses to recover operations.

# The solution & value to stakeholders

## PROBLEM

- Flooding causes refrigerated inventory loss
- Food contamination leads to waste
- Existing options require relocation or power

## FEATURES

- ✓ Waterproof enclosure
- ✓ Rapid deployment
- ✓ Generator/Battery compatible
- ✓ Sealed zipper + ventilation

## VALUE

- Protects inventory
- Reduces downtime
- Easy deployment
- Lowers business losses

FroZone protects refrigeration systems during floods and keeps inventory safe.



# Versatile Storage Solutions

Compact and easy to store when not in use.



Under cashier/desk



In an inventory rack



In between awkward spaces

# During vs After

## DURING FLOOD



FroZone bag keeps food inside safe, protects the refrigerator.

## AFTER (RECOVERY)



Bag is removed once water is not considered a threat to the refrigerator.



## ACTIVE VENTILATION & HUMIDITY CONTROL (Running while Sealed)

- Proven Ventilation Chimney System

### INSIDE THE BAG – VENTILATION CHIMNEY

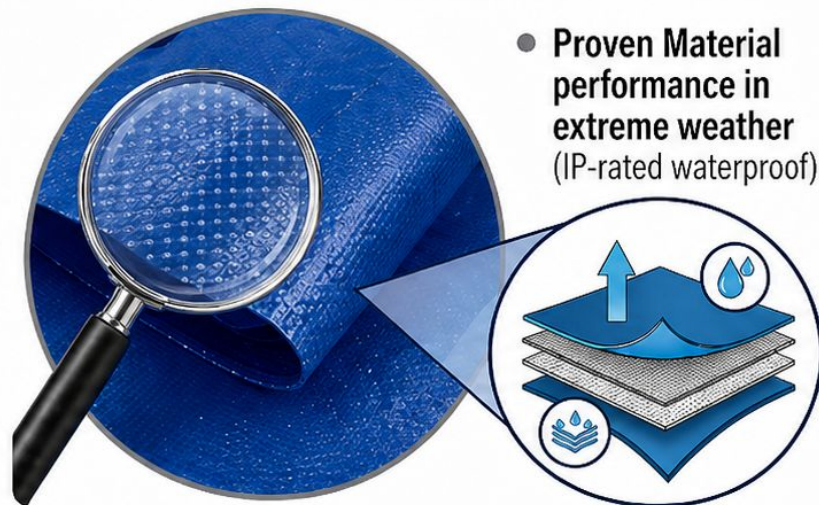


Integrated mesh and ventilation allow internal air to rise and exit, preventing overheating and moisture buildup.

- **The core innovation:** A self-regulating, airflow loop that allows the refrigerator to operate while safe from floodwaters.

## ULTRA-DURABLE, PROVEN-WATERPROOF BARRIER

- Heavy-Duty Ripstop Polymer-Coated Tarp Material (Compare to premium camping gear and tactical tents)



- Multi-layer laminate with embedded reinforced scrim
- Tested for hydrostatic pressure resistance exceeding flood conditions.





# FroZone Ecosystem

*How the bag is made, deployed, and sold*

## HOW IT'S MADE

### Manufacturing

- › US-based contract manufacturer
- › Heavy-duty PVC / tarp material
- › Waterproof rubberized zippers
- › Mesh ventilation chimney
- › Low-friction base layer
- › Custom sizes: S / M / L

## WHERE IT'S USED

### In Restaurants (During a Flood)

- › Flash flood alert received
- › Bag deployed over fridge in <10 min
- › Zipper sealed & fully waterproof
- › Power rerouted to elevated outlet or generator with an extension cord
- › Ventilation chimney keeps fridge running
- › Inventory stays cold. Business continues.

## WHERE IT'S SOLD

### Sales Channels

- › Direct (FroZone website)
- › Amazon (fast shipping nationwide)
- › Restaurant supply distributors
- › Flood-prep & emergency retailers
- › Target: food-service small businesses

SUPPORTING ECOSYSTEM — Other products & services FroZone is complemented by

#### Flood Alert APIs

NOAA / NWS data  
triggers early warning

#### Cellular Signal

Delivers real-time  
alerts to the business

#### Building Super

Coordinates access  
in shared spaces

#### Insurance Partners

Small biz flood  
coverage & bundles

#### Supply Distributors

Restaurant supply  
channels & co-ops

# Comparisons to Alternatives

| Feature            | FroZone                                                                      | Krisis Flood Bag                                         | Commercial Flood Barriers                                          | Sandbags / Water-Activated Bags                                               |
|--------------------|------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Primary Use Case   | Commercial Kitchen Equipment (Freezers/Refrigerators)                        | General Furniture and Home Goods                         | Whole building/doorway protection                                  | Ground-level water obstruction and diversion                                  |
| Deployment Speed   | Quick: Slide-over design with a single zipper                                | Medium: Requires lifting/shifting furniture into the bag | Slow: requires permanent installation or significant storage space | Very Slow: Extremely heavy, messy, and hard to store in small NYC restaurants |
| Inventory Security | Max: Prevents contamination of food stock while keeping the unit cold        | High: Good watertight seal for dry goods/electronics     | Variable: Only works if the building's entire perimeter holds.     | Low: does not prevent seepage or airborne contaminants                        |
| Power Integration  | Included: Integrated waterproof portal for power cords to keep units running | None: Items must be unplugged and fully enclosed.        | N/A: Protects the restaurant, not the specific appliance.          | None: Cords are often left exposed to rising water.                           |
| Price Point        | Would be on the lower end since we have set sizings for manufacturing.       | Medium: \$800 - \$1,200+ per bag.                        | High: \$2,000 - \$10,000+ (plus installation).                     | Low upfront but high "labor/disposal" cost.                                   |

# Delivering Fairness

*How FroZone delivers fairly*



## 1. Equitable Access by Design

- Affordable for small business budgets
- Fast-deploy setup in under 10 minutes
- Practical for small teams without specialized labor



## 2. Transparent & Affordable Pricing

- Clear pricing tiers for Small, Medium, and Large refrigerators
- No ambiguity in product sizing or cost
- Reusable for repeated flood events, reducing replacement costs



## 3. Responsive Support & Feedback

- Direct-to-owner help for installation, ordering, and troubleshooting
- Clear communication channels when problems arise
- Ongoing feedback from NYC restaurant owners helps improve the product



## 4. Economic Equity Across NYC

- Accessible across all five boroughs, not just central Manhattan
- Designed to give all owners a fair fighting chance
- Supports pathways to financial assistance for eligible small businesses



FroZone fairness means **inclusive access**, **transparent pricing**, **responsive support**, and **equitable protection** for NYC small businesses.





# FroZone - Pitch

Small restaurant owners can survive some flood damage, but losing refrigerated inventory is one of their biggest financial hits. When floodwaters rise, they have only a short window to protect thousands of dollars worth of food, and once that inventory is contaminated, it must be discarded. This can erase a week of profit in hours.

We created FroZone, a fast-deploy waterproof bag that seals around commercial refrigerators during floods, helping restaurants prevent costly losses.

Building on proven waterproofing technologies already used in camping gear and household protection, FroZone makes flood prep possible and practical for small businesses.

# FroZone Appliance Flood Protection System

*How the bag is deployed to protect commercial refrigerators*



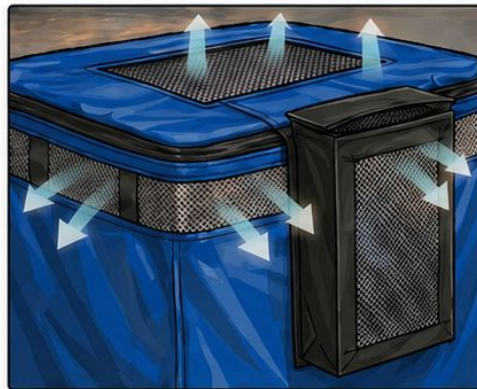
- 1 A flood warning is issued in the area.



- 2 The fridge is placed into the much larger waterproof bag.



- 3 An extension cord runs the power from the fridge to the top, which can plug into an elevated generator if there are no ceiling outlets.



- 4 Vents at the top and sides of the bag allow airflow for the fridge.



- 5 The zipper is sealed tightly at the top for waterproof protection.



- 6 The fridge is fully secured inside the waterproof bag.



Folded & Compact



Deployed State - Front View



Deployed State - Rear Vent & Cable

# Image Sources

- Prototype images made by the FroZone Team
- Logo made by the FroZone Team
- Stock images from Google