ARCH THESIS 2020

RETHINKING HOME WASTE

A new model for residential waste management

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Ever since the emergence of capitalism, followed by trends of conspicuous consumption and the boom of plastics and preservative packaging, household waste production has become an issue of public concern in which the US has achieved to champion the podium. Ever since the 1800's world shift from a society focused on consumption for basic necessities to one directed mostly by consumption by leisure, individuals have lost their ability for consumer control, shopping mostly for pleasure and for items with unprecedented short lifespans whose final destination is the landfill. The world's economic system change too, feeding off these impulsive consumer behaviors, unnecessarily altered the consumption cycle of necessity items.

Up until the emergence of world- scale commerce, the cycle of consumption of necessity goods (food, mostly) remained relatively close to the home. Different localities would produce food and essential items within their own locals, creating small centers of local commerce, very rarely extending beyond national borders. The appearance of mass-production of goods resulted on the extinction of this local commerce system and the appearance of a new one, where it became "easier, cheaper and better" to produce necessity goods elsewhere, to then be shipped world-wide. Exportation distances today, even for the most basic items, have increased exuberantly, translating in enumerable packaging and waste bi-products, all of which end up being thrown out from the comfort of our homes

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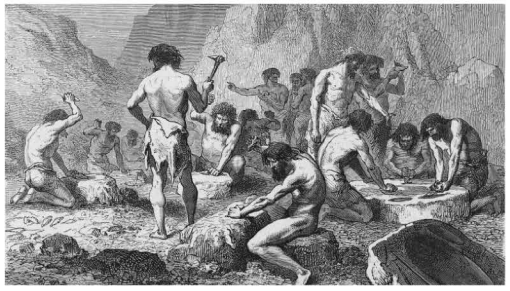
Desde la aparición del capitalismo, seguido por las tendencias de consumo conspicuo y el auge de los plásticos y los envases de conserva, la producción de residuos domésticos se ha convertido en un tema de interés público en el que los EE. UU. ha logrado posicionar en el podio. Desde el cambio mundial del 1800, de una sociedad centrada en el consumo para las necesidades básicas a otra dirigida principalmente por el consumo por placer, las personas han perdido su capacidad de control del consumidor, comprando principalmente por placer y por artículos de vida temporal cuyo destino final es el vertedero . El sistema económico mundial también cambió, alimentándose de estos comportamientos impulsivos del consumidor, alterando innecesariamente el ciclo de consumo de artículos de necesidad.

Hasta la fecha aparición del comercio a escala mundial, el ciclo de consumo de artículos de necesidad (principalmente alimentos) permanecía relativamente cerca del hogar. Diferentes localidades producían alimentos y artículos esenciales dentro de sus propias localidades, creando pequeños centros de comercio local, que muy raramente traspasaban fronteras nacionales. La aparición de la producción masiva de productos dio como resultado la extinción de este sistema de comercio local y causó la aparición de uno nuevo, donde se hizo "más fácil, más barato y mejor" producir artículos de necesidad en otros lugares, para luego ser enviados a todo el mundo. Hoy en dia, las distancias de exportación han aumentado exuberantemente incluso para los artículos más básicos, traduciéndose en enumerables envases y basuras, todo al final siendo descartado desde la comodidad de nuestros hogares.

TIMELINE OF CONSUMPTION

Selected points for argument. Need vs. Luxury

NECESSITY vs. LUXURY



HUNTER-GATHERER PERIOD

Homo sapiens appears
200,000 years ago

Early Neolithic 10,000 BCE
First records of human settlers

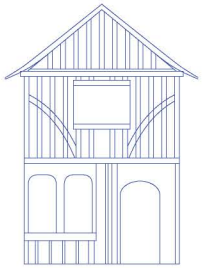
9500 BCE
Propper farming structure begins. Crops such
emmer, einkorn wheat, hulled barley, peas and
lentils are cultivated and stored

MEDIEVAL PERIOD

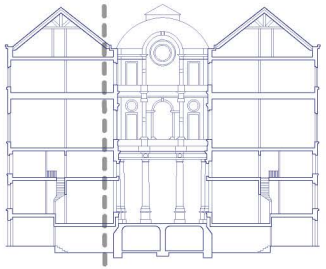
1250 CE
Earliest known
evidence of ma
food storage in
region of Tel Ts

FIRST SHIFT

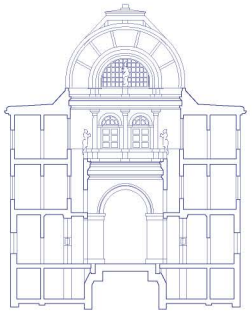
CE Begins



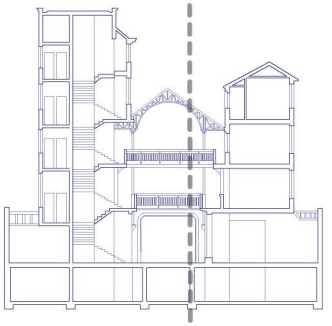
The artisan home



Galeries St. Hubert
1846-1847 BRUSSELS



Sillem's Bazar
1842- 1845, Demolished 1881 HAMBURG



Deansgate Arcade
1900, Demolished 1956 MANCH

as

CROSS-NATIONAL TRADE PERIOD

THE ARCADE

1820-1840
Period of Fashion

1840-1860
Expansion

Post-190
Decline o

1492 CE

The columbian exchange brings in a wide variety of new products from the Americas

1820 CE

The Arcade becomes a formal architectural typology

1873 CE

First contemporary Silo is
Hatch in McHenry Count

1759-1840 CE The industrial revolution

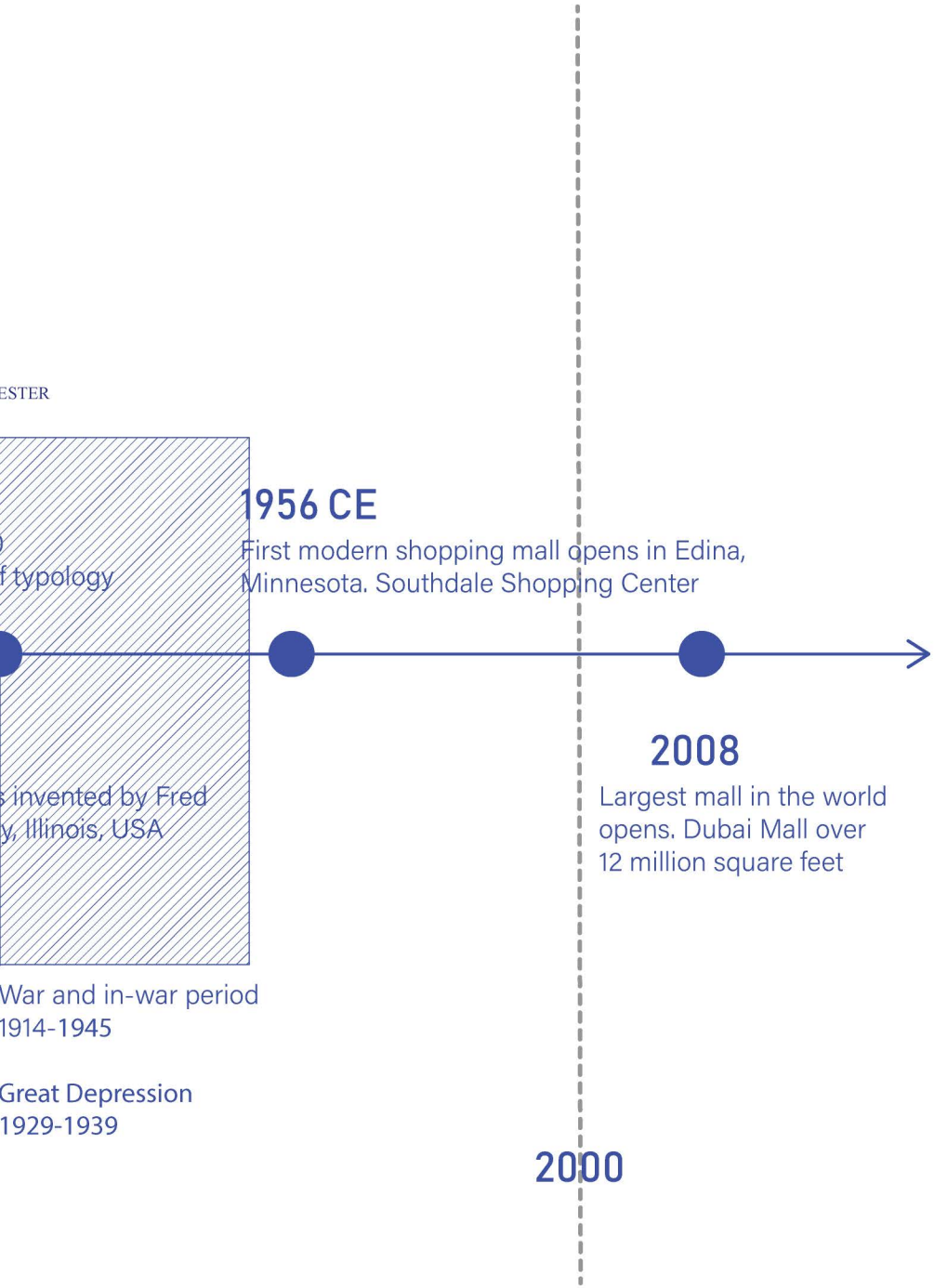
MODERN PERIOD

SECOND SHIFT

1600

1800

1900


ESTER
f typology
s invented by Fred
y, Illinois, USA
War and in-war period
1914-1945
Great Depression
1929-1939
1956 CE
First modern shopping mall opens in Edina,
Minnesota. Southdale Shopping Center
2008
Largest mall in the world
opens. Dubai Mall over
12 million square feet
2000

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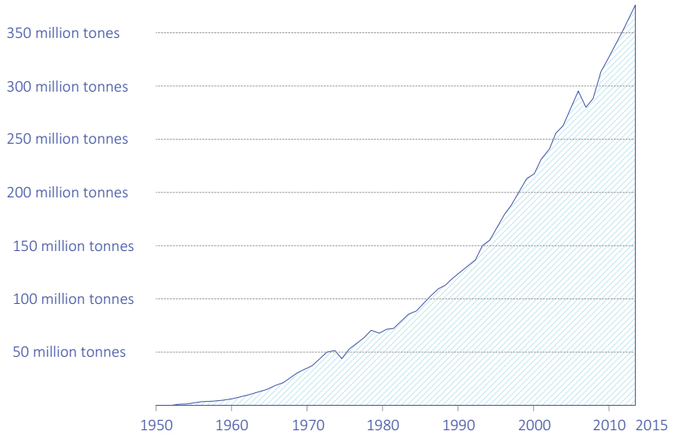
Global Plastics production



Over 300 million tons of plastic
Every year, 50% from single-use purposes

Over 8 million tons of plastic in oceans
Discarded every year

20 to 50 million metric tons of e-waste
Discarded every year

4.6 poundsof solid waste
Discarded per person per day in the United States

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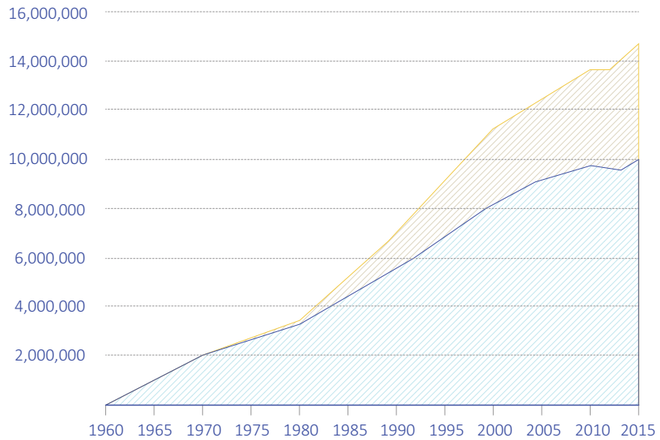
Plastic Containers and Packaging Waste Management



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According to the EPA, the average American person produces about 5.91 pounds of trash per day, from which only 1.51 pounds gets recycled. In total, the United States alone produces over 254 million tons of solid waste. Meanwhile, Americans continue to manage trash by putting it away for collection on their street curve.

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OUT OF SIGHT OUT OF MIND

The Problem

According to statistics collected in 2019, the United States produces a total of 254 million tons of solid waste every year. This means that only in five years, Americans will have discarded a total of 1,270 million tons of trash, the equivalent to the weight of approximately 11.5 million blue whales, 5.5 times more the number of existent blue whales in the world. From this total, only 34.3 percent will be adequately managed. As statistics demonstrate, waste management in the United States is becoming a problem of concerning urgency. Ever since the 1960s, US municipal waste generation has increased by 67.11%, and trends suggest that future waste discharge will follow the same growth. Although policies are now starting to become stricter on the way Americans manage their waste, refuse discharge seems to only have worsen. The research conducted in this investigation identifies two main problems.

First Problem: The distance conflict

Ever since the appearance of global capitalism, the shipment of goods became subjected to a need for durable packaging. Long-distance shipments require great quantities of preservation materials. The conservation strategy originated for the need of global product exchange has now become the standard for today's everyday production, resulting on inmesurable amounts of waste discharge.

Second Problem: The recycling problem

Conceptions of refuse limit the way people choose to address the waste problem. People in the United States choose not to or do not recycle because:

1. They are not educated on how to properly manage waste or recycle.
2. They believe waste management tasks should be responsibility of municipalities, and therefore they do not need to manage waste.
3. Homes and Public spaces are not properly equipped to successfully manage waste.
4. Waste facilities are not aesthetically pleasing, nor is waste.
5. Waste is often associated with poverty, and the problems of the lower class.

1500 1600 1700 1800 1900 2000

TODAY

WHAT WASTE?

COMPOST WASTE

SHORT-USE WASTE

LONG-USE WASTE

Glass, Rags and Paper is used as packaging materials

Little sophistication in pack aging materials:
Gourds, Shells, Leaves used to hold foods.

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PAPER

Origins: 2nd Century BC. Paper originates in China to wrap foods.

1700
Paper Industry develops in the US. Rags turned into paper.

12th century. Paper production moves to Europe

1817- Paperboard Invented

1852 Francis Wolle Invents Paper Bag-making machine

1870- Glued Paper sacks

1910- Cardboard boxes replace wooden crates

Every year, the world produces 400 million metric tons of paper product, all of which is consumed globally.

GLASS

Origins: 7000 BC, becomes industrialized in Egypt in 1500 BC.

1700
Split Mold Develops, allows for irregular shapes and decorations.

1889- First automatic bottle-maker appears

1900-1960- Glass bottles dominate liquid products

The world produces a total of 12.2 million tons of glass waste every year.

METAL

Origins: Prehistoric, used for weapons, bowls and cups until 18th century.

1764- Tobacco starts to get sold in metal cannisters

1810- First tin cans patented

1830- Metal Boxes used to sell goods

Total of 24 million tons of metal waste every year.

PLASTIC

Origins: 19th Century

1831 First plastic invented. Styrene

1835 Vinyl chloride invented

1860 Celluloid Invented

1950 Styrofoam available worldwide. Insulation and cushioning materials , foam boxes and cups and trays for food become popular.

1977 PETE Bottles become the standard

1980 PETE used for other products

Plastic serves as the main product used in the packaging of products. 380 million tons of plastic are produced globaly each year, making it the most pollutant kind of solid waste.

1750 *INDUSTRIAL REVOLUTION* 1840

WASTE MANAGEMENT

People could not afford to discard clothes or household furnishings untill worn out. Even then, many people made money from selling their rags and scraps.

All commercial system based on practices of resuse

Street Scavenging practices of reuse

Borders of the home as place of disposal: Garbage is thrown out the door and dishwasher water is thrown out the window.

New Industrial advancements get rid of pratices of reuse, garbage is thrown to the street.

Municipal trash collection appears, trash is collected in landfills outside of ity borders

Pigs on the streets eat compost (1840)

1937, First Municipal Landfill opens in California

1998, US' largest Landfill s nearly full

1960s' Mainstream recycling. Hippy movement fails to make impact

1980 Local Infrastructures developped in municipalities in support of recycling

Americans still put their trash on the street for collection and do not separate recycling.

The United States continues to have one of the least efficient waste management systems compared to European competitors.

254 million tons of solid waste

CONSUMPTION

CONSUMO = BASURA

GARBAGE

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According to statistics, 8.5% of the total global annual discharge of solid waste occurs at the home. Although recycling practices are now on the rise, the far distance of these from the home, and often times their absence serve as a problem towards the resolution of questionable futures. There is an opportunity to research for new forms of less wasteful living. The reconciliation of the home as the main agent in the cycle of consumerism, taking precedent in the economic structures of 14th and 15th century Europe, can begin as a strategy to construct new models of self-sustainable living. These, if combined with efficiently integrated systems of recycling to address the inevitable existence of global capitalism, may begin to formulate new possibilities for a world with less solid waste discharge.

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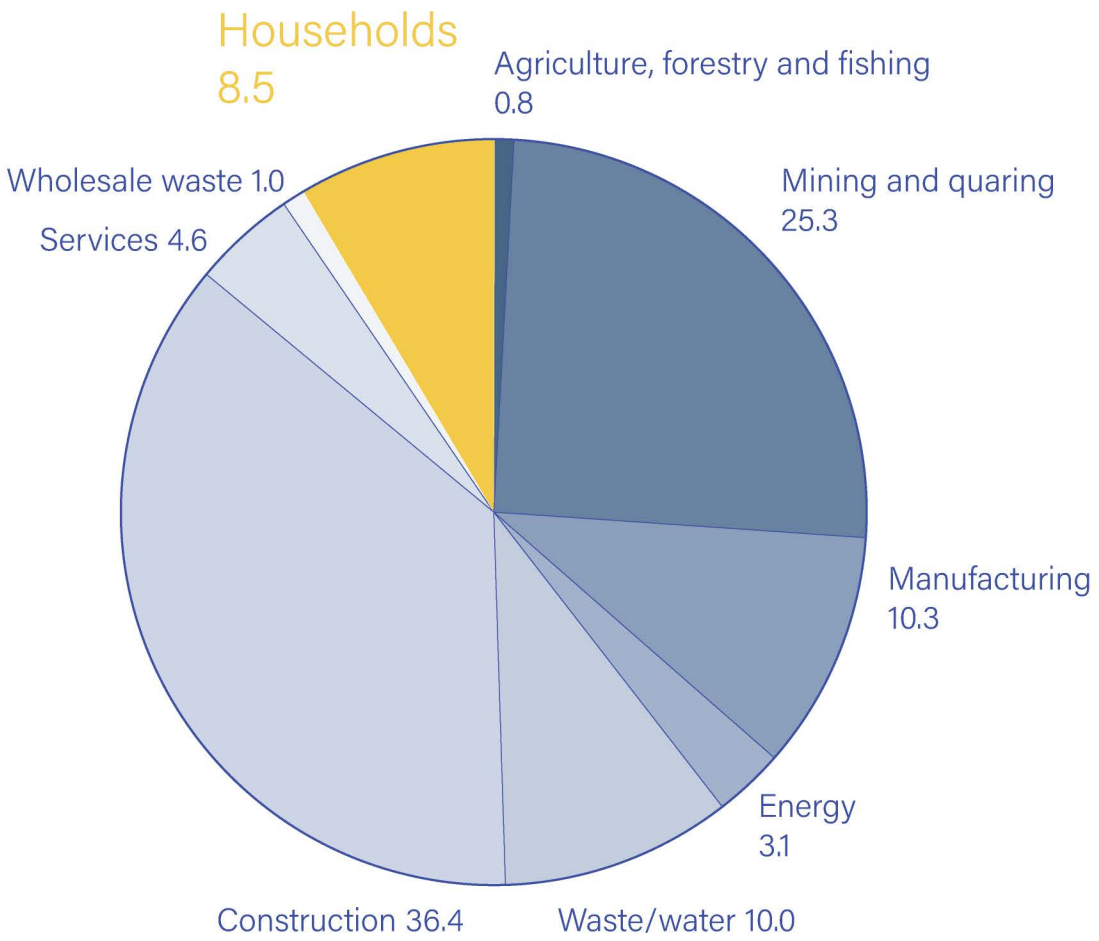
Según las estadísticas, el 8,5% del desecho anual total global de basura se produce en el hogar. Aunque las prácticas e iniciativas de reciclaje van en aumento , las largas distancias de estas desde el hogar y muchas veces, su ausencia, son un problema para la resolución del problema. Existe la oportunidad de investigar nuevas formas de vida menos derrochadora. La reconciliación del hogar como agente principal en el ciclo del consumo, como la que fue precedente en las estructuras económicas de la Europa de los siglos XIV y XV, puede servir como una estrategia para construir nuevos modelos de vida sostenible. Estos, si se combinan con sistemas de reciclaje eficientemente integrados para abordar la existencia inevitable del capitalismo global, pueden comenzar a formular nuevas posibilidades para un mundo con menos descargas de basura innecesaria.

IS HOUSING THE 'SOLUTION'?

Waste generation by economic activity (%)



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Increasingly every year, New York City has become a site for irresponsible disposal, reaching numbers above fourteen million tons of garbage produced annually, from which sixty-four percent is being produced at the home. Conceptions of waste as invisible matter, gone after placed at the curbside and with no further environmental implications at landfill are challenging the acquisition of education towards our waste problem and worsening the situation annually.

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Más cada año, la ciudad de Nueva York se ha convertido en uno de los mayores sitios de desecho de basura irresponsable, alcanzando cifras superiores a catorce millones de toneladas de basura producidas anualmente, de las cuales el sesenta y cuatro por ciento provienen del hogar. Las percepciones de basura como materia invisible, que desaparecen tras colocarlas en la acera y sin más implicaciones ambientales en los vertederos, están desafiando la adquisición de educación hacie el problema de basuras y empeorando la situación anualmente.


Bottles & Cans Only
rk City
ecycling
New York


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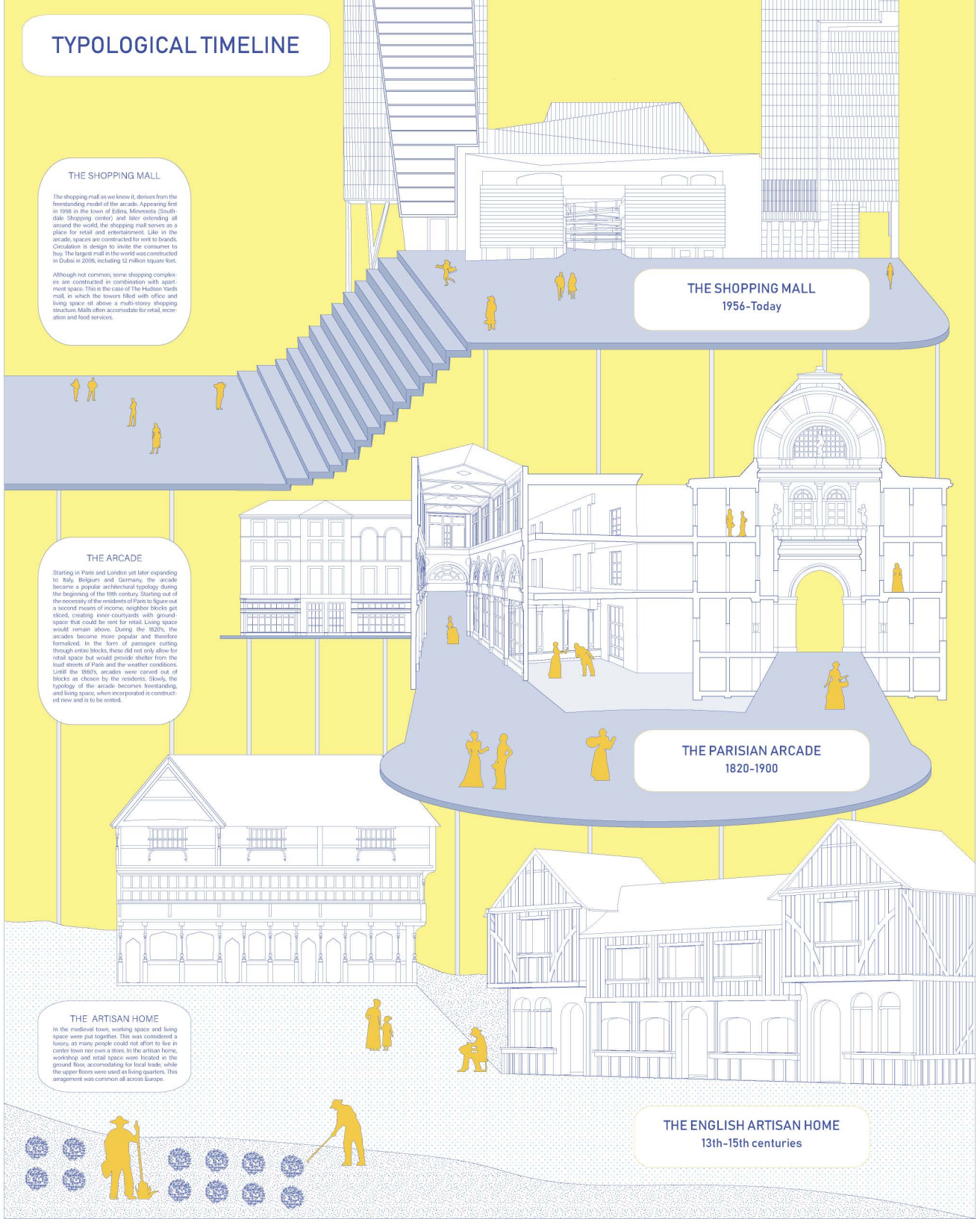
ARCHITECTURE CHANGED, TOO

TYPOLOGICAL TIMELINE



WHAT'S NEXT?

LEARNING FROM COMMERCIAL ARCHITECTURE

Could a more sustainable type of architecture be as desirable?

Commercial Architecture in NYC has demonstrated to be beautiful, desirable and influential in the way people choose to consume. Could architecture serve as an agent in retrofiting current waste discharge practices?

APRENDIENDO DE LA ARQUITECTURA COMERCIAL

Podría la arquitectura sostenible ser tan atractiva?

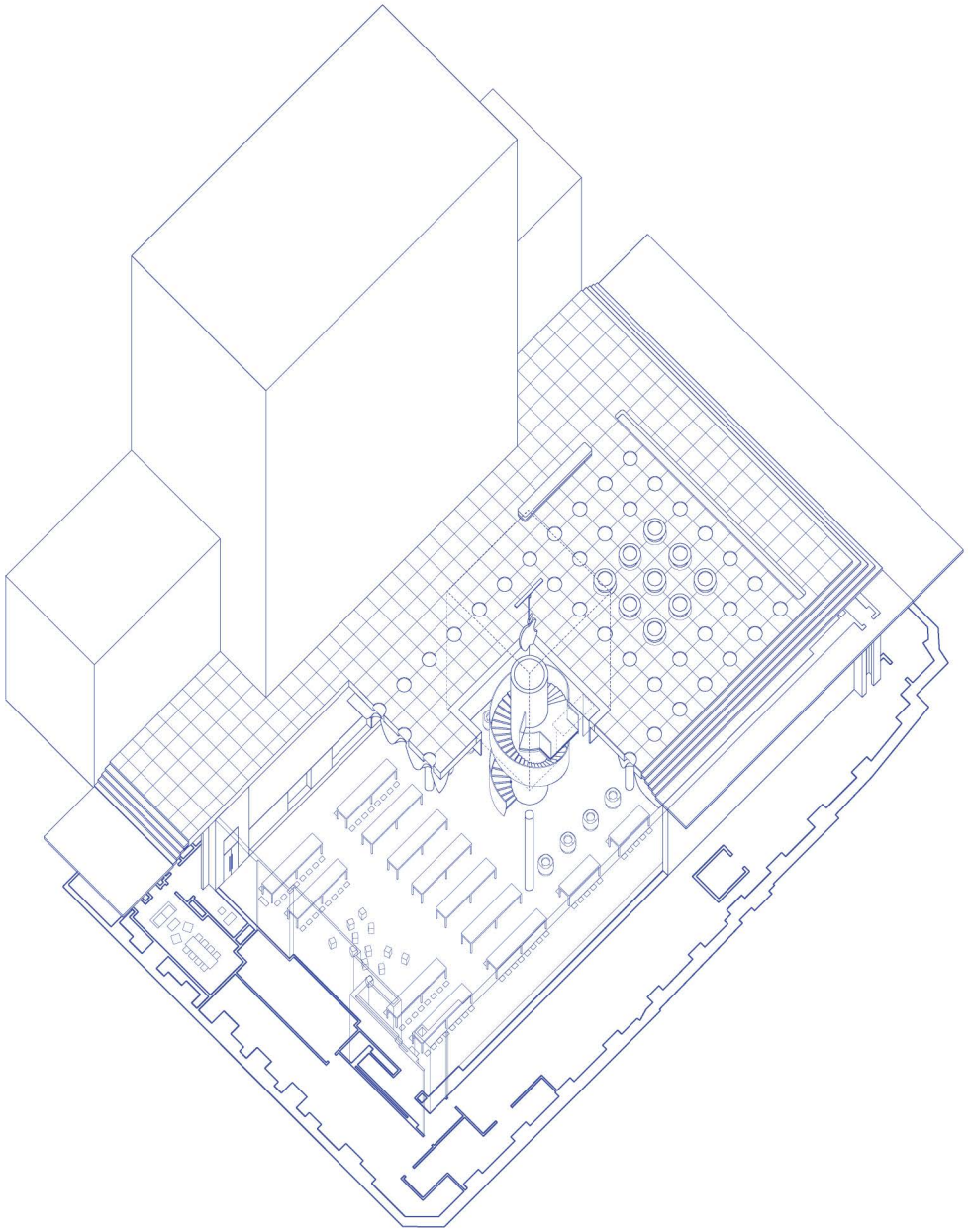
La arquitectura comercial en Nueva York ha demostrado ser hermosa, deseable e influyente en las practicas de consumo de las personas. ¿Podría la arquitectura servir como agente hacia la mejora de las prácticas actuales de descarga de residuos?

MUJI STORE

The Shops at Hudson Yards, Manhattan, New York City

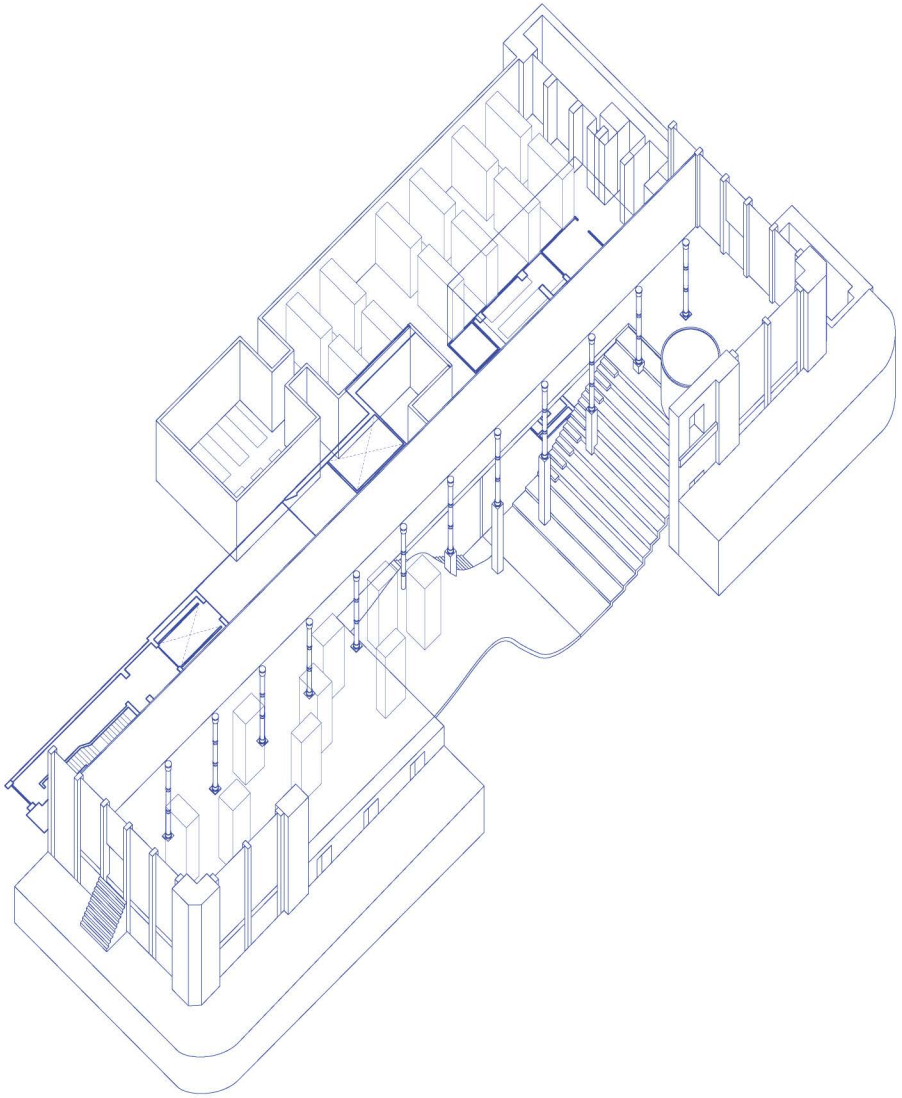
HUDSON YARDS MALL

Hudson Yards, Manhattan, New York City



APPLE STORE PLAZA

Fifth Avenue, Manhattan, New York City



PRADA STORE

Broadway on SOHO, Manhattan, New York City

THE PROJECT

EL PROYECTO

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Aiming to investigate ways to increase public interest, this thesis aims to serve as a model towards the speculative resolution of the New York City inadequately managed waste surplus. With the speculation that the home can serve as an agent towards adequate refuse management due to proximity principles, this proposed model takes the form of a multi-family scale residential complex, designed with concepts of less wasteful living and community life and focused towards the normalization and education of adequate waste discharge practices, as well as the incorporation of community self-sustainability strategies and incentivized practices of reuse.

The site, incorporating multiple sorting hubs for residential waste discharge, expands the dual recyclables system of New York City (meaning, the recycling bin and the garbage bin) to one sorted by individual material classification and similar to the recently demonstrated successful European models such as those in Zurich and Berlin, utilizing economic profit from the selling of that material as an incentive for the community, and ultimately, resulting on an architecture model capable to speculatively resolve some of the challenges of the NYC waste conflict and ultimately becoming zero-waste.

The project is design around the following ideas: How can we retrofit the way individuals think about waste? Could garbage management become an enjoyable and normalized activity, rather than a boring task? How can we implement and expose adequate waste management facilities that go beyond the common, unpleasant and often smelly space of the garbage room? If we successfully begun to incorporate waste management into design, could architecture serve as an agent towards the resolution of the NYC waste problem?

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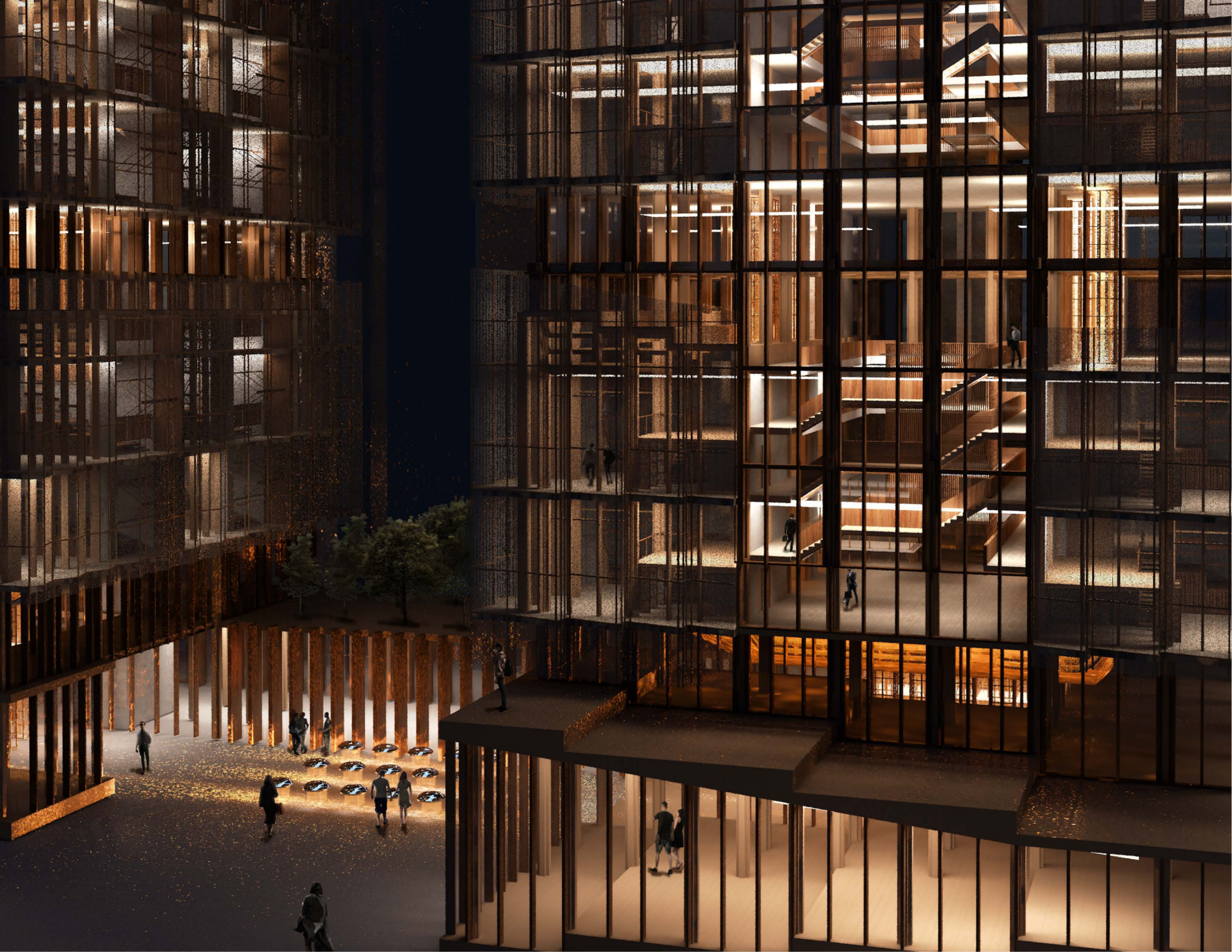
Con el fin de investigar nuevas formas de aumentar el interés público, esta tesis tiene como objetivo servir como modelo arquitectonico para la resolución especulativa de los problemas de gestion de residuos de la ciudad de Nueva York. Con la idea de que la casa puede servir como agente hacia el manejo adecuado de basura debido a principios de proximidad, el modelo propuesto en esta tesis toma la forma de un complejo residencial a escala multifamiliar, diseñado con conceptos de vida menos derrochadora y comunitaria y enfocado hacia la normalización y la educación de prácticas adecuadas de descarga de residuos, así como la incorporación de estrategias de autosostenibilidad y prácticas incentivadas de reutilización.

El projecto, que incorpora múltiples centros de clasificación para la descarga de residuos residenciales, expande el sistema dual de reciclables de la ciudad de Nueva York (es decir, contenedor de reciclaje y contenedor de basura) a uno ordenado por clasificación de material individual y similar a los modelos europeos recientemente demostrados como los de Zurich y Berlín, y utilizando el beneficio económico de la venta de ese material como un incentivo para la comunidad dando como resultado un modelo de arquitectura capaz de resolver especulativamente algunos de los desafíos de la problematica con residuos de Nueva York.

El proyecto está diseñado en torno a las siguientes ideas: ¿Cómo podemos adaptar la forma en que las personas piensan sobre residuos? ¿Podría la gestión de basura convertirse en una actividad agradable y normalizada, en lugar de una tarea aburrida? ¿Cómo podemos implementar y exponer instalaciones adecuadas de gestión de residuos que vayan más allá del espacio común, desagradable y a menudo maloliente de la sala de basura? Si comenzamos con éxito a incorporar la gestión de residuos en el diseño, ¿podría la arquitectura servir como agente para la resolución del problema de residuos de Nueva York?



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AGAIN, **How can we implement and expose adequate waste management facilities that go beyond the common, unpleasant and often smelly space of the garbage room? If we successfully begun to incorporate waste management into design, could architecture serve as an agent towards the resolution of the NYC waste problem?**

The design project takes the form of two 260 ft tall towers located adjacent to the multi-story NYU dormitories and centered as a hinge between commercial and educational urban program. Made primordially using high-rise wood construction and recyclable materials such as a plastic and paper, the residential tower aims to provide residents with an environment that differs from that one usually found in New York City housing, substituting it with a more waste "vernacular", temporary and adaptable alternative.

The waste sorting facilities are incorporated into the project at three different scales. These are, at the **individual scale**, meaning the apartment, at the **community scale**, found in what I define as the different tower "neighborhoods", and at the **building scale**, accessible to the people living in surrounding buildings. Each tower consists of three communities, each one including twelve family apartments each capable of hosting up to six members. Each community is divided from one another by a community garden, connected to a central public atrium for social interaction and inclusive of a water collection system. At the top of the two towers, there is an accessible rooftop. The bottom of the tower includes commercial and public space, open to both residents and non-residents.

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DE NUEVO, ¿Cómo podemos implementar y exponer instalaciones adecuadas de gestión de residuos que vayan más allá del espacio común, desagradable y a menudo maloliente de la sala de basura? Si comenzamos con éxito a incorporar la gestión de residuos en el diseño, ¿podría la arquitectura servir como agente para la resolución del problema de residuos de Nueva York?

El proyecto de diseño toma la forma de dos torres de 260 pies de altura ubicadas junto a las residencias universitarias de NYU y centradas como una bisagra entre el programa urbano comercial y educativo. Construido primordialmente de madera e incluyendo materiales reciclables como plástico y papel, la torre residencial tiene como objetivo proporcionar a los residentes un entorno que ligeramente difiere del que generalmente se puede encontrar entre las viviendas de la ciudad de Nueva York, sustituyéndolo por una alternativa mas temporal y adaptable.

Las instalaciones de coleccion de residuos se presentan en el proyecto a tres diferentes escalas. A escala individual, es decir, al apartamento, a escala comunitaria, en los distintos "barrios" de la torre, y a escala del edificio, accesible a todas las personas residentes en los edificios circundantes. Cada torre consta de tres comunidades, cada una con doce apartamentos familiares, cada uno capaz de albergar hasta seis miembros. Cada comunidad está dividida entre sí por un jardín comunitario, conectado a un atrio público para la interacción social e inclusivo de un sistema de recolección de agua. En la parte superior de las dos torres, hay una azotea accesible. La parte inferior de la torre incluye espacio comercial y público, abierto tanto para residentes como para no residentes.


High-End and Luxury Shops
Residential ‘Sustainable’ buildings
Institutional ‘Sustainable’ buildings
Commercial ‘Sustainable’ buildings

Longitudinal section

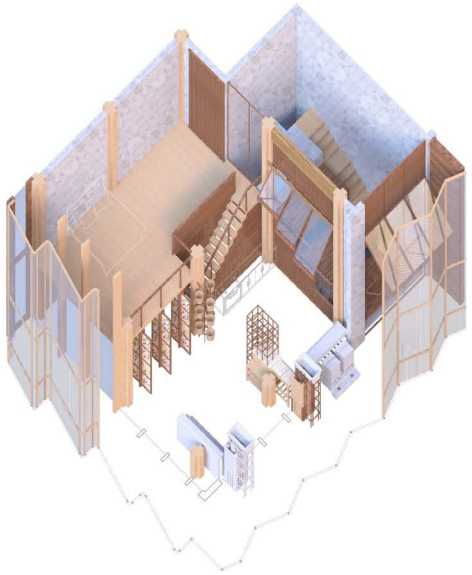
Corte longitudinal a escala grafica

Typical plan

Planta tipica

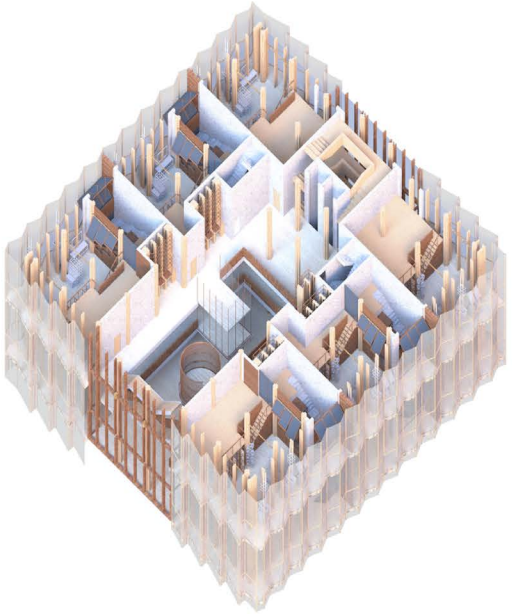
WASTE MANAGEMENT AT THREE SCALES

GESTION DE RESIDUOS A TRES ESCALAS



01

Individual scale



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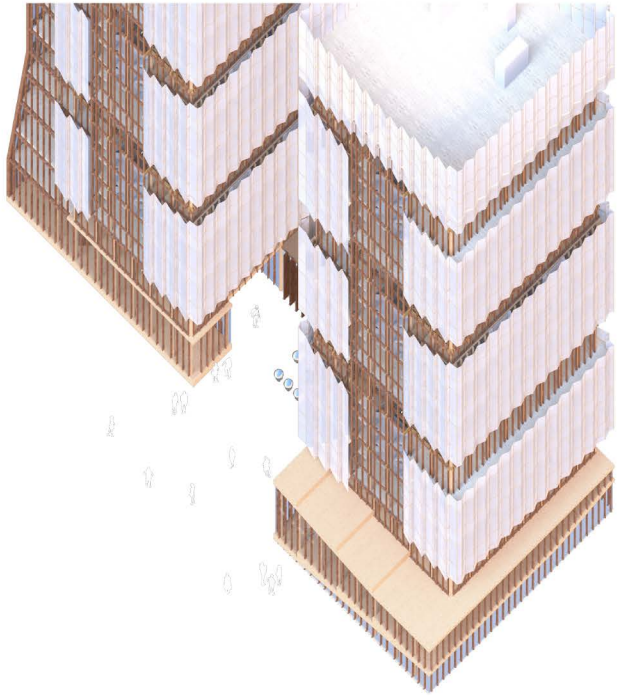
Community scale



03

Building scale

01

FIRST SCALE

Waste management within the apartment

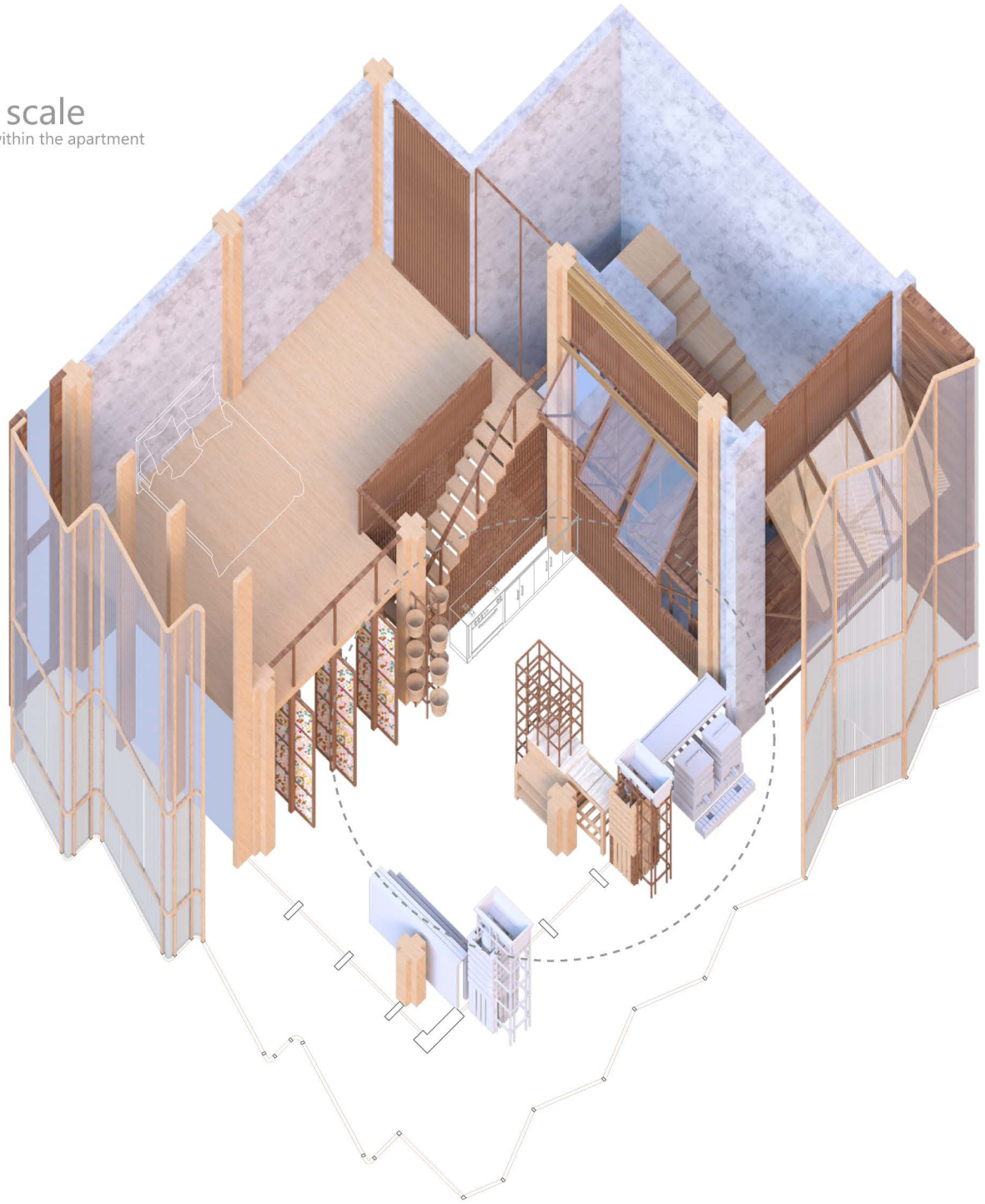
PRIMERA ESCALA

Administración de residuos en el apartamento

01

Individual scale

Waste management within the apartment



Sorting baskets
Cestas de separacion

Waste items, sorted by recyclable type can be sorted and placed at the resident's convenience in these baskets. These are easily removable to deliver to collection stations in the community spaces.

Drying stack
Estanteria de secado

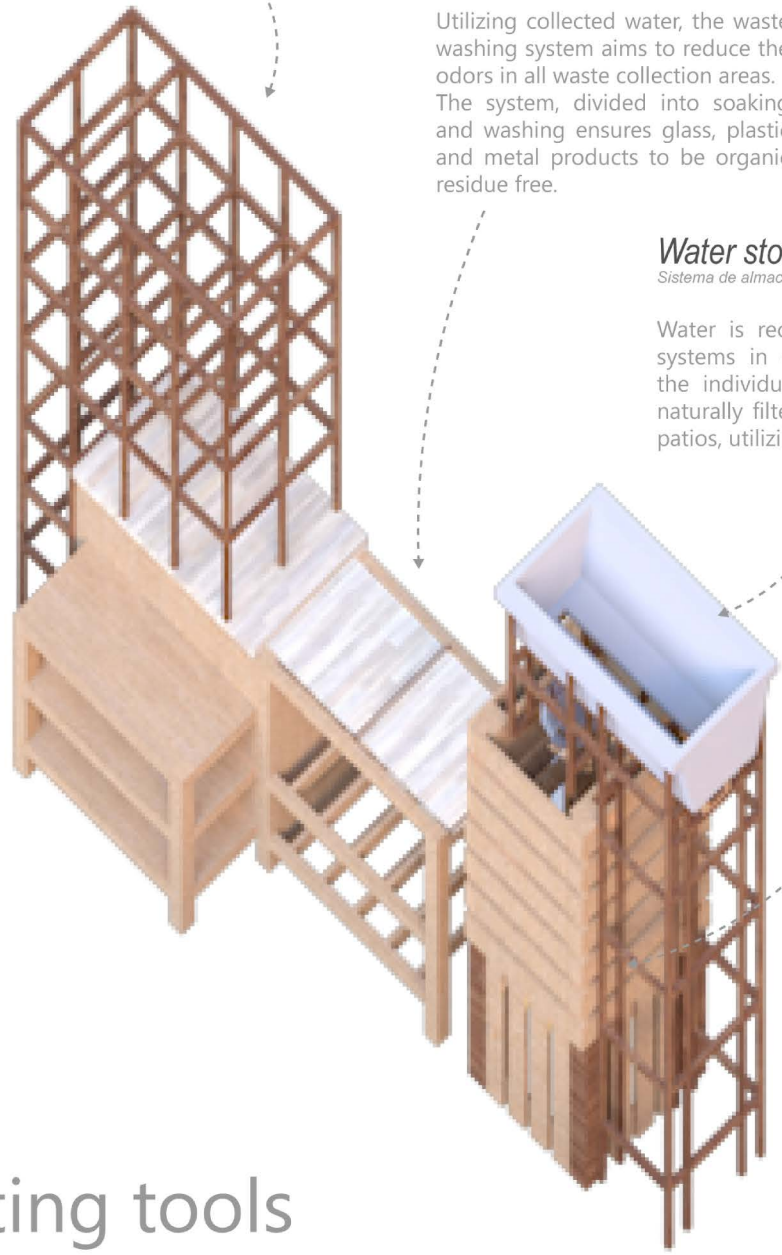
The drying stack allows waste items to be dried after washing. Waste becomes "exposed"

Waste washing system
Sistema de limpieza de basura

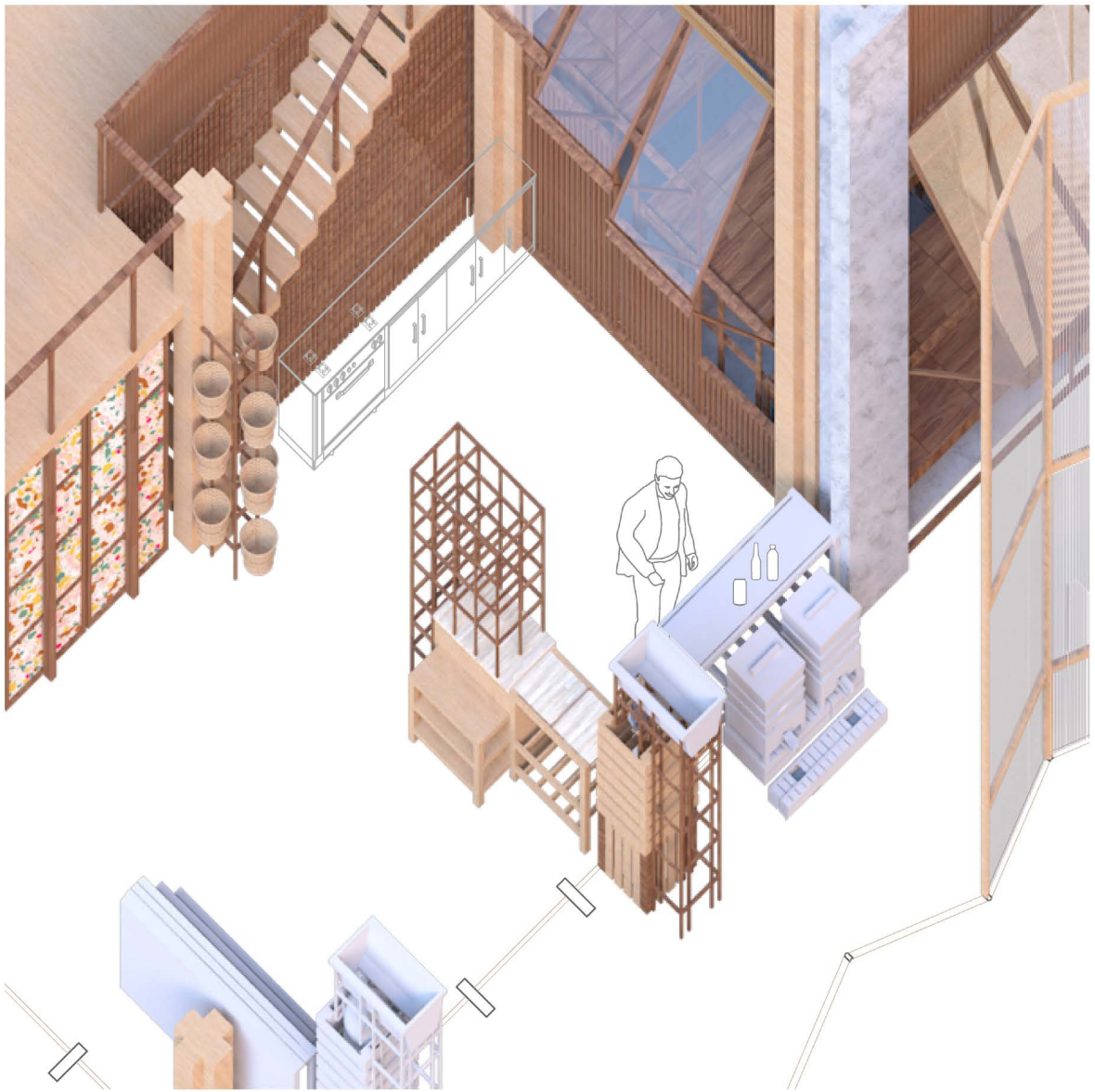
Utilizing collected water, the waste washing system aims to reduce the odors in all waste collection areas. The system, divided into soaking and washing ensures glass, plastic and metal products to be organic residue free.

Water storage system
Sistema de almacenamiento de agua

Water is received from collection systems in greenhouse floors. At the individual scale, the water is naturally filtered and stored in the patios, utilizing this system.



01 Waste sorting tools
At the individual scale

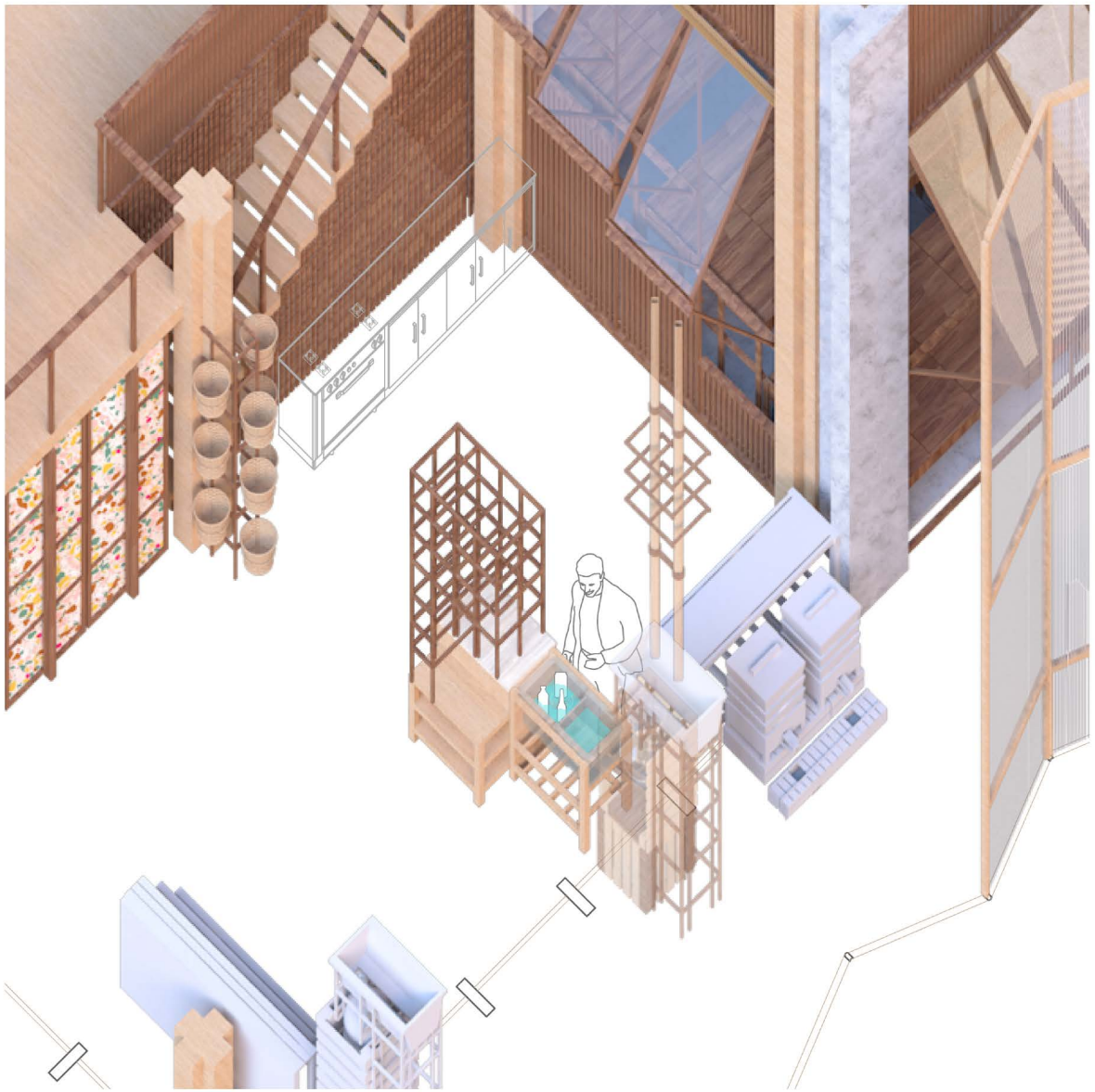


AFTER USING THE ITEMS

DESPUES DE USAR LOS ARTÍCULOS

After shopping for food items or other, the user arrives home. The regular use of the items often results in the generation of remaining garbage, most likely including a great number of packaging items needing to be properly managed.

Después de comprar alimentos u otros, el usuario llega a casa. El uso regular de los artículos da como resultado la generación de basura, lo que probablemente incluye una gran cantidad de artículos de embalaje que necesitan ser gestionados adecuadamente.



SOAKING/WASHING

REMOJO/LAVADO

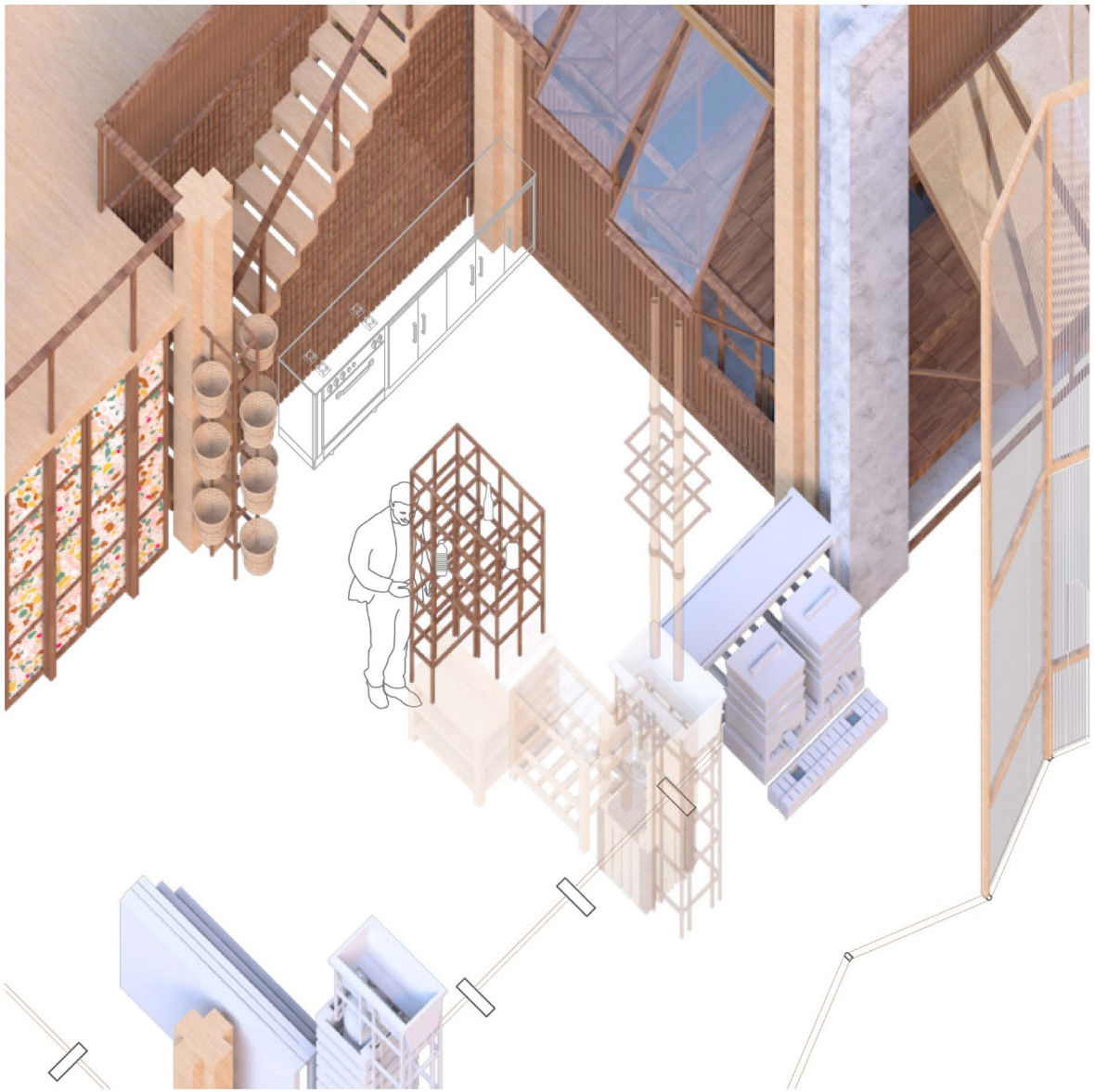
The user takes the food items or any other items that contain organic residue or are dirty and proceeds to the washing station. In here, a bin using water directly harvested from in-site collection provides space for both soaking and washing.

Why is this important?

One of the largest challenges of current waste discard and management sites is their smell. The inclussion of this simple step could be the first step towards normalization.

El usuario toma el empaquetado de comida o cualquier otro artículo que contenga residuos orgánicos o estén sucios y se dirige a la estación de lavado. Aquí, un contenedor que usa agua directamente recolectada en el edificio proporciona espacio para remojar y lavar. ¿Porque es esto importante?

Uno de los mayores desafíos de las salas de basura y gestión de residuos actuales es su olor. La incorporación de este simple paso podría ser el primer paso hacia la normalización

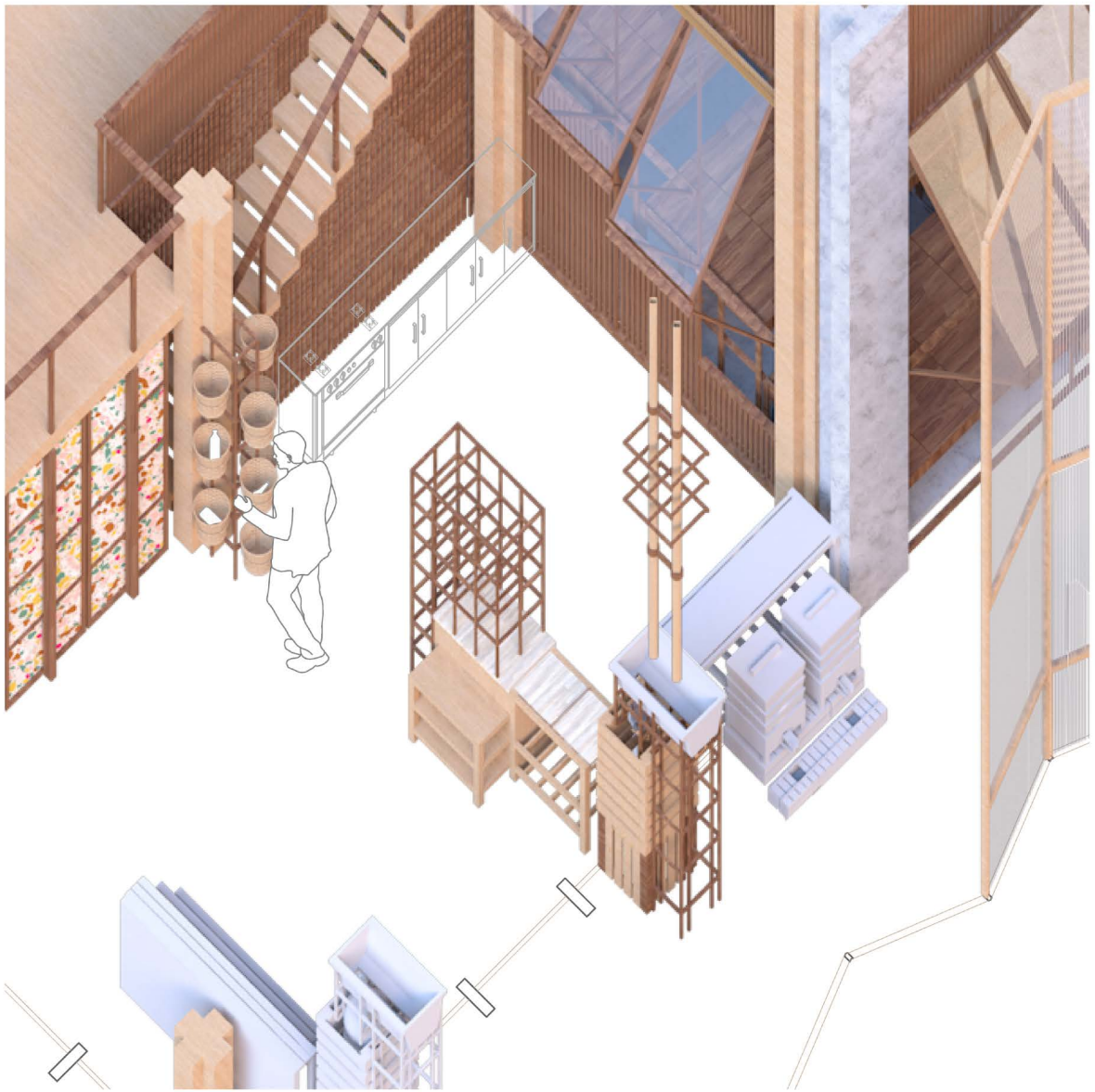


DRYING/DISPLAYING

SECANDO/ EXHIBIENDO

After garbage items have been washed, they are placed in the drying rack. In here, they become “displayed” within the apartment. This exposure aims to serve as an educational tool, as well as providing awareness on how much waste the user is producing everyday. Will your rack over-flow?

Después de lavar los artículos de basura, estos se colocan en la estanteria de secado. Aquí, se "exhi-ben" dentro del departamento. Esta exposición tiene como objetivo servir como herramienta educativa, así como dar a conocer cuánta basura produce el usuario todos los días. ¿Se desbordará tu estante?

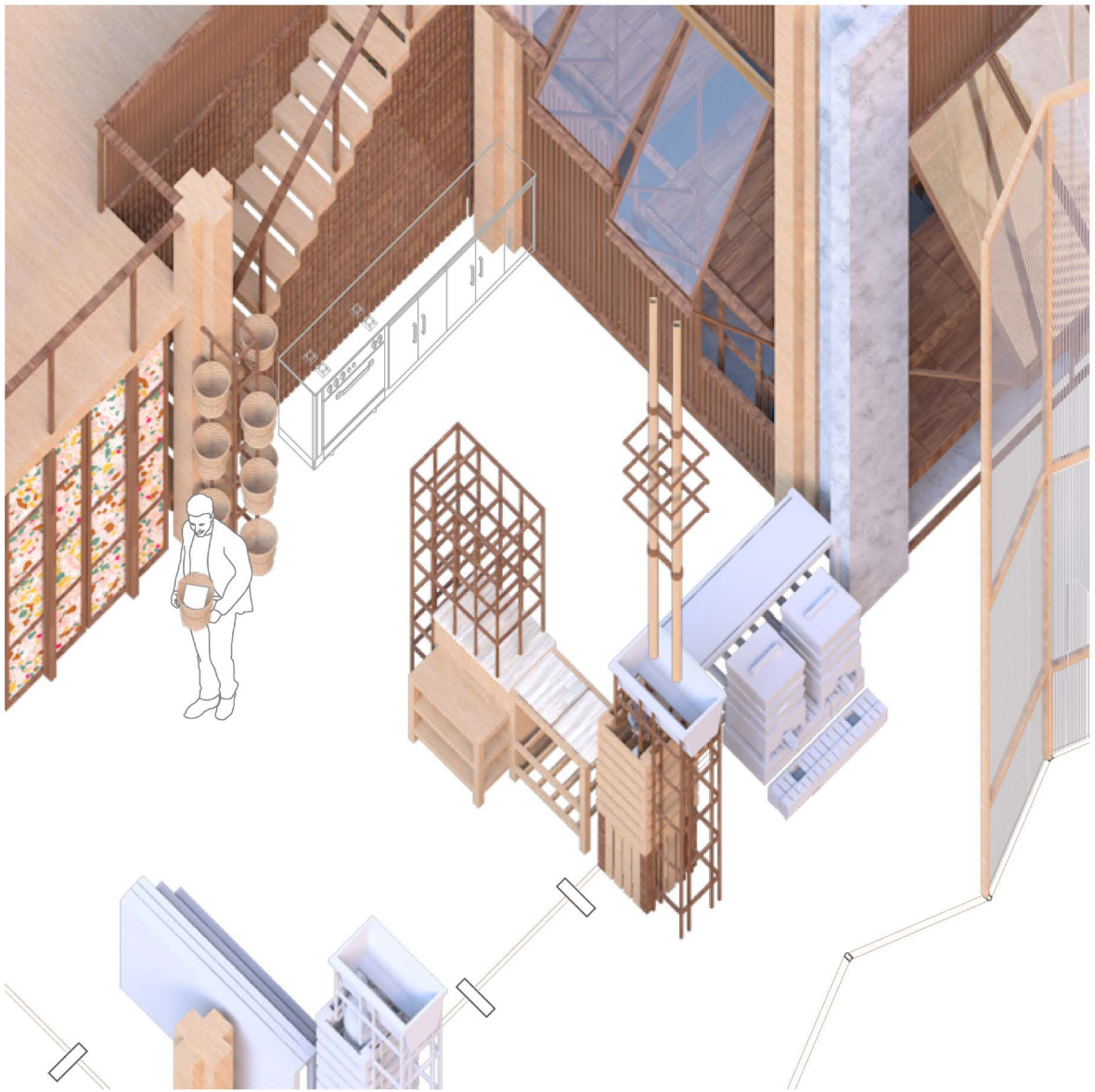


SORTING

SEPARANDO

After drying, a number of baskets provide a space for the user to begin the sorting process of recyclable materials. The baskets are then taken to the community sorting stations.

Después del secado, varias cestas proporcionan un espacio para que el usuario comience el proceso de separación de materiales reciblables. Después, las cestan se llevan a las estaciones de clasificación de la comunidad.



DISCARDING

DESECHANDO

The baskets are easily transportable. After sorting, the user will take these to the community sorting station. It's that easy.

Las cestas son fácilmente transportables. Después de la separación de reciclables, el usuario las llevará a la estación de separación comunitaria. Es así de fácil.

02

SECOND SCALE

Waste management within the community

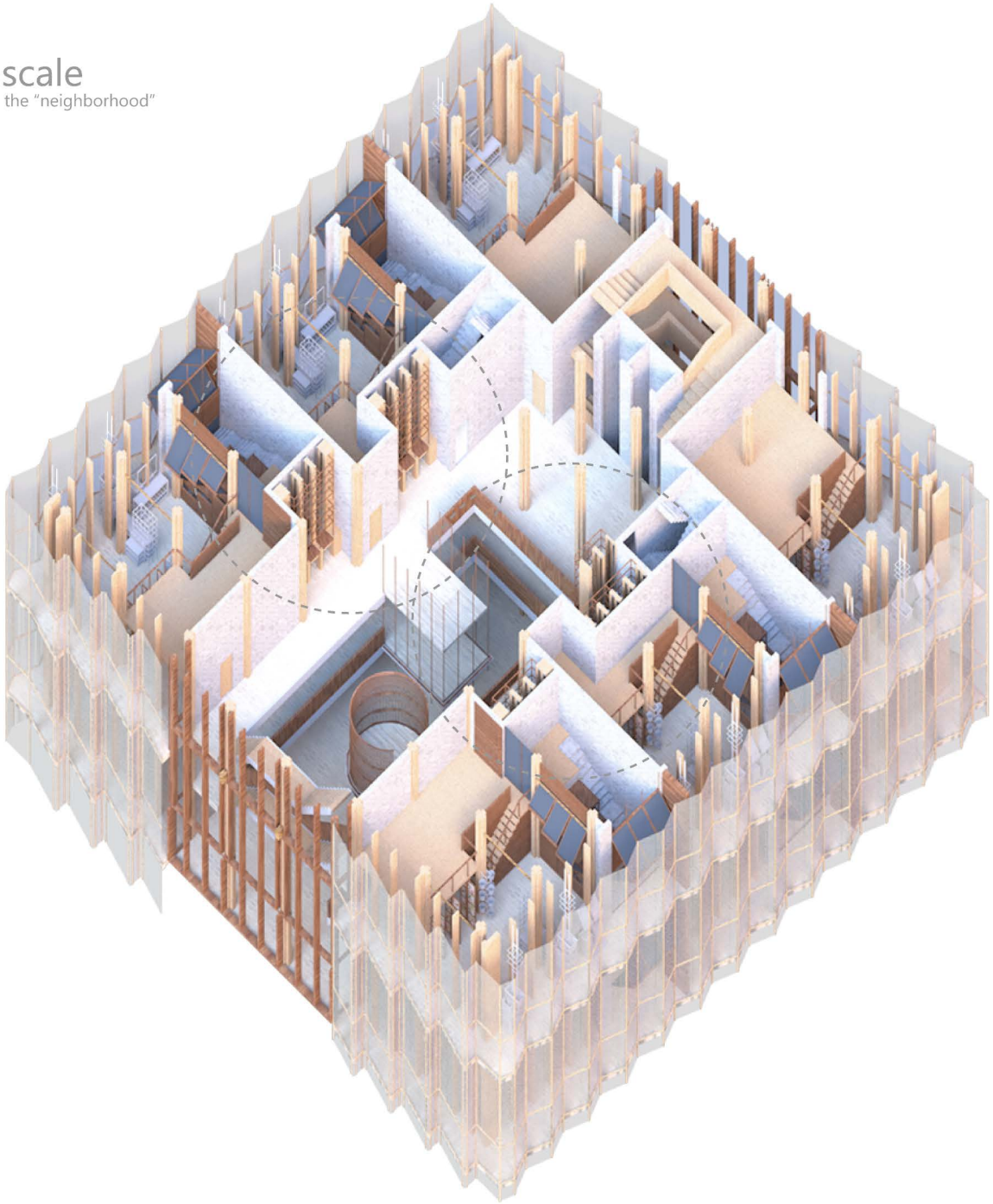
SEGUNDA ESCALA

Administración de residuos en la comunidad

02

Community scale

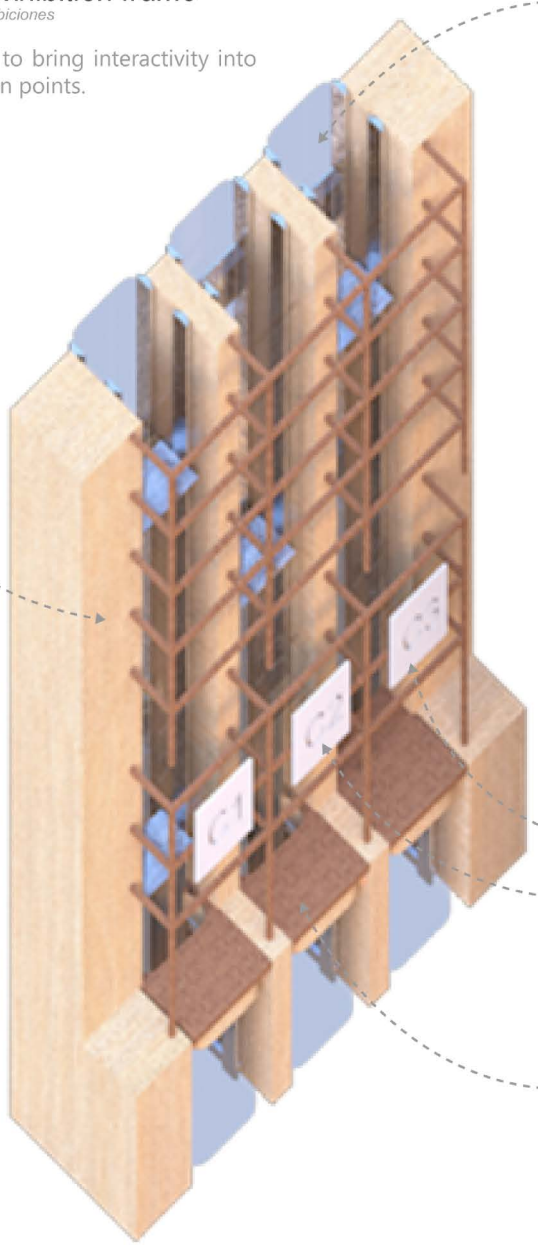
Waste management within the "neighborhood"



Planting and exhibition frame

Marco para plantas y exhibiciones

These frames aim to bring interactivity into the waste collection points.



Travel tubes and trays

Tubos de desplazamiento

A series of automatic 'traveling' tubes, allow trays to move up and down from the residential spaces into the waste processing facility. These moving trays can be seen through the tubes and serve as the way for residents to discard their waste items.

Separation signs

Etiquetas de separacion

Serving as an educational tool, each collection compartment is equipped with a separation sign, which provides information on the recyclable type, what can be included into that bin, and what can't.

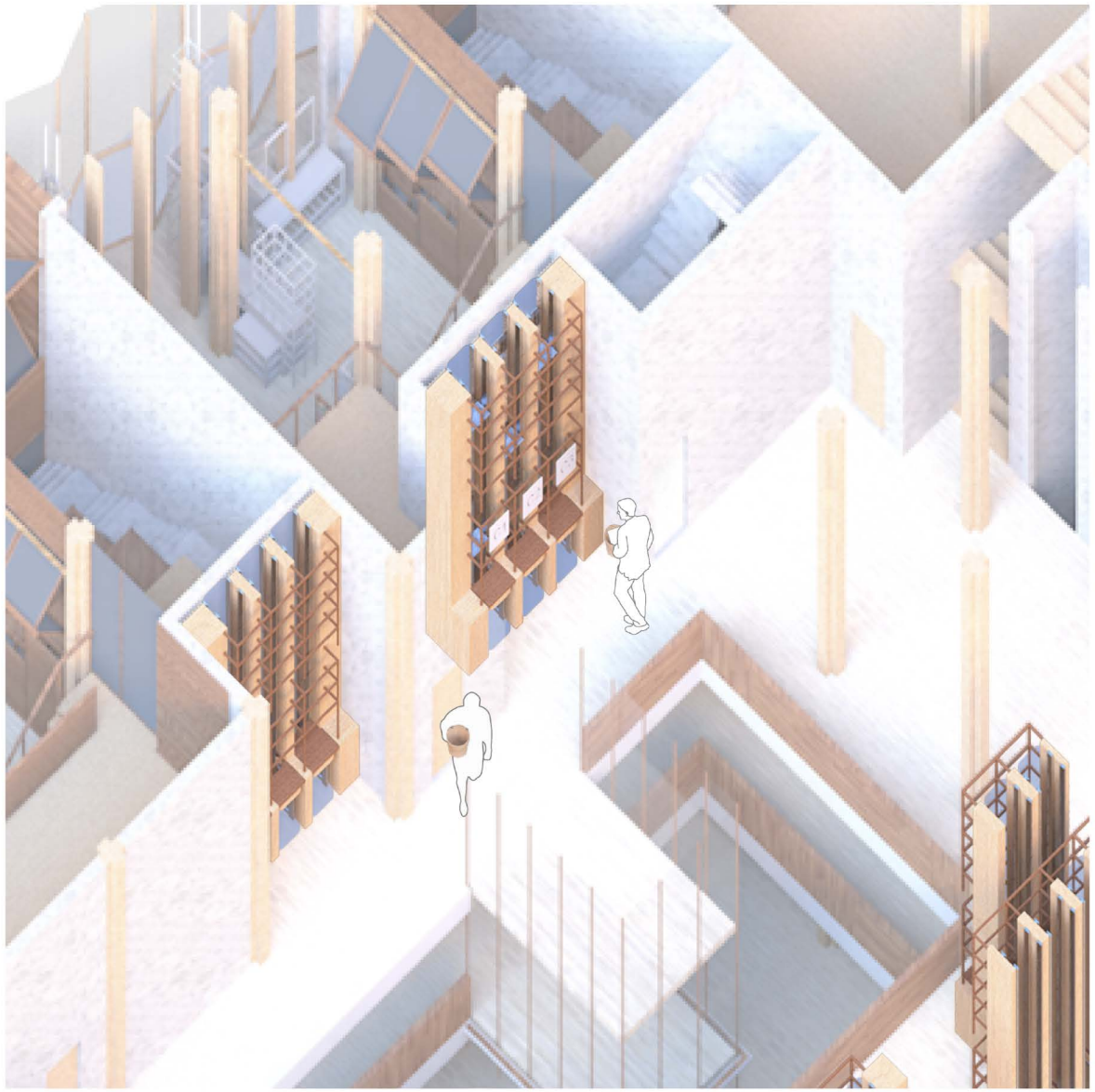
Collection compartments

Compartimentos de colleccion

Located in community spaces, these collection compartments or 'bins' allow residents to place their sorted waste items to be sent to the building processing facility. These are separated into recyclable categories and grouped by material type.

02 Waste sorting tools

At the community scale

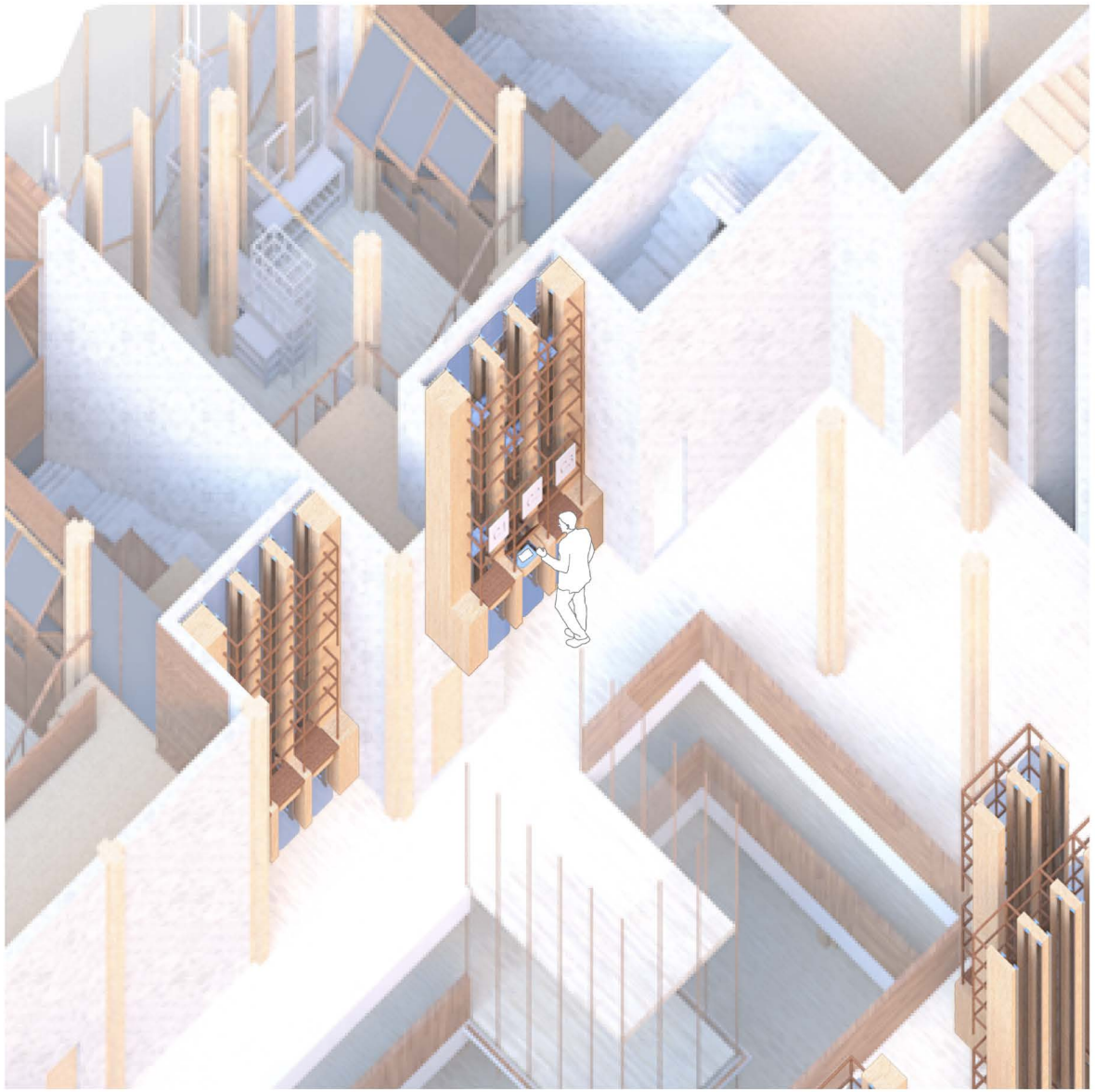


FINDING THE RIGHT STATION

ENCONTRANDO LA ESTACIÓN ADECUADA

Now out of the apartment, the user takes the sorting bins to the community waste management stations. These are carefully labeled for each type of material classifications and are organized into different groups across the plan.

Ahora fuera del apartamento, el usuario lleva las cestas de clasificación a las estaciones de gestión de residuos de la comunidad. Estos están cuidadosamente etiquetados para cada tipo de material y están organizados en diferentes grupos.

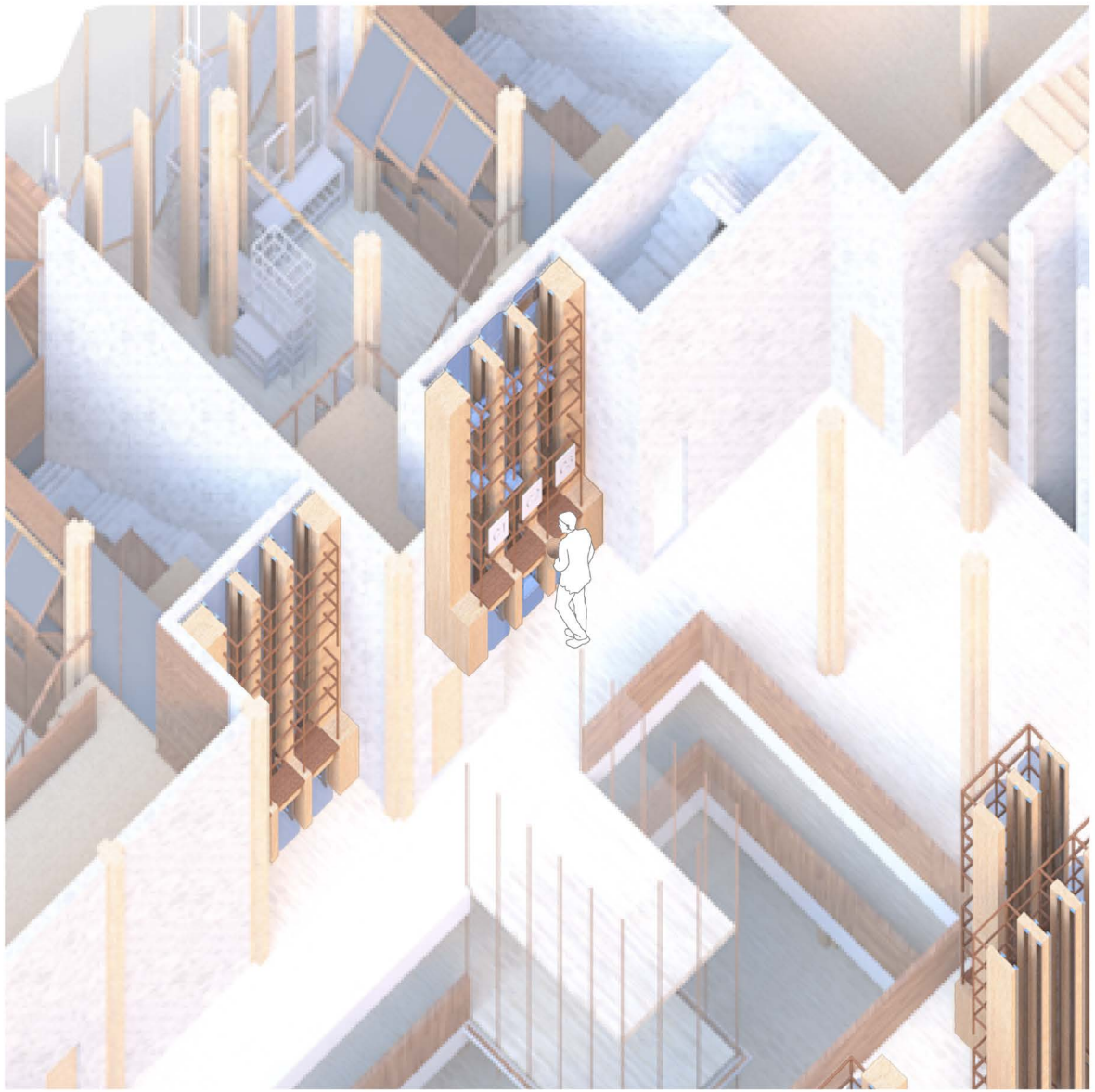


PLACING THE MATERIAL

INSERTANDO EL MATERIAL

The user opens the lid of the placement capsule in the station and places materials onto the tray.

El usuario abre la tapa de la cápsula de la estación y coloca los materiales en la bandeja..



SEEING THE MOVEMENT

VIENDO EL MOVIMIENTO

Once closed, it's time for the user to see the waste trays go down the tubes to the waste processing facilities. Seeing the movement of waste trays going up and down the tower aims to serve again as an educational tool that "exposes the waste" into the public space.

Una vez cerrado, es hora de que el usuario vea que las bandejas de residuos bajan por los tubos hasta las instalaciones de procesamiento de residuos. El movimiento visible de las bandejas de basura subiendo y bajando por la torre tiene como objetivo nuevamente servir como una herramienta educativa que "expone la basura" en el espacio público.

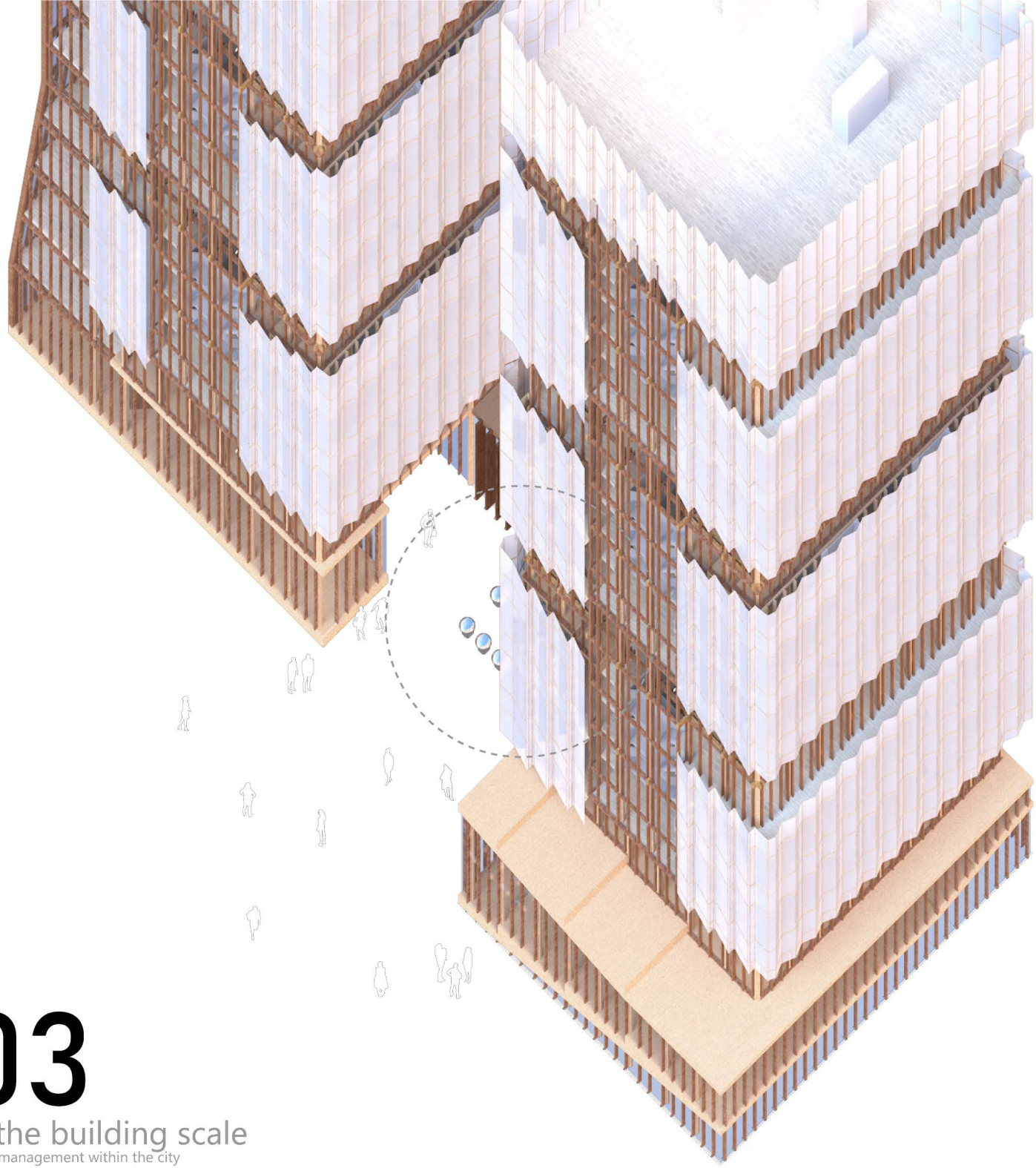
03

THIRD SCALE

Waste management within the city

TERCERA ESCALA

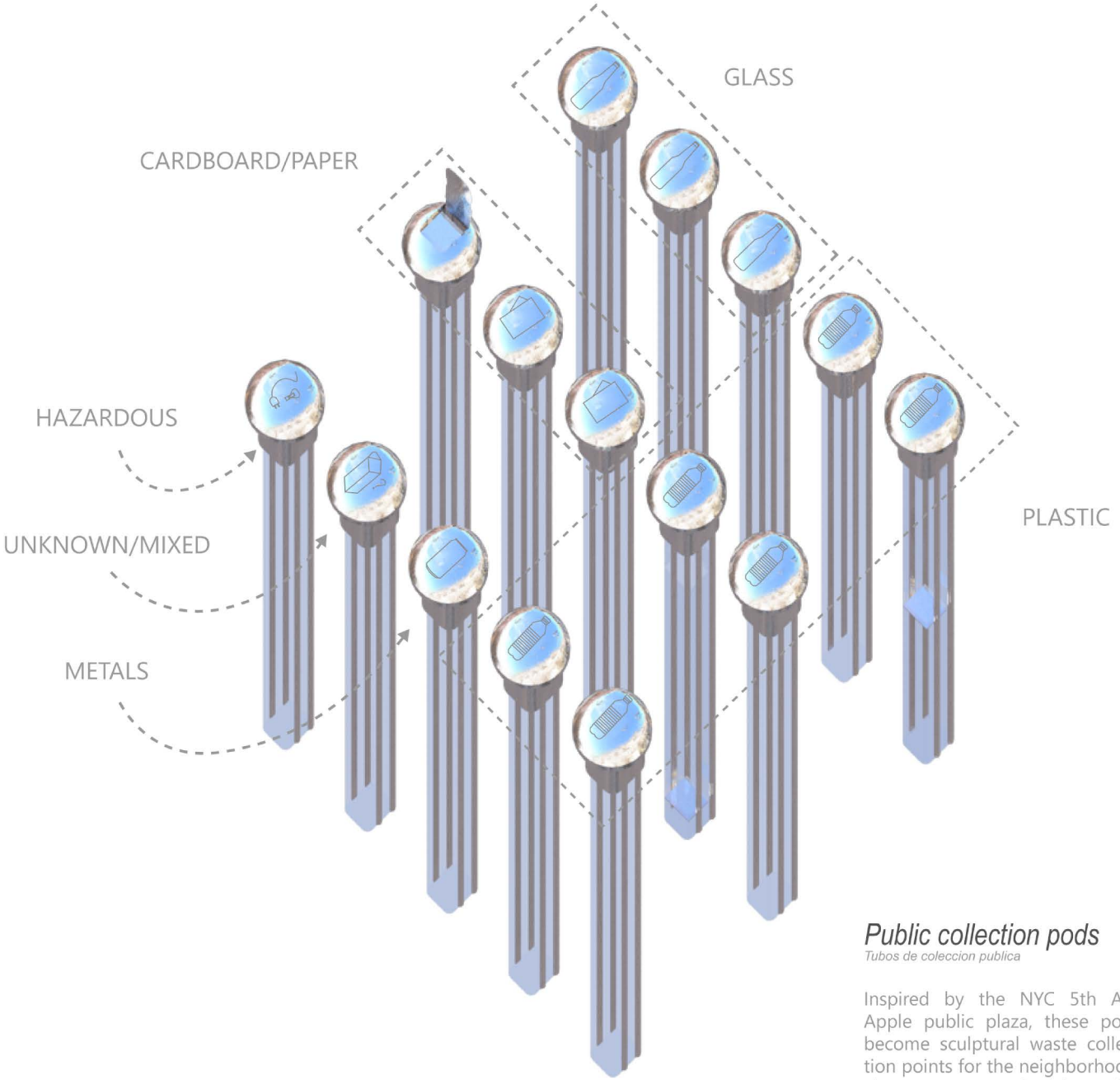
Administración de residuos en la ciudad



03

At the building scale

Waste management within the city



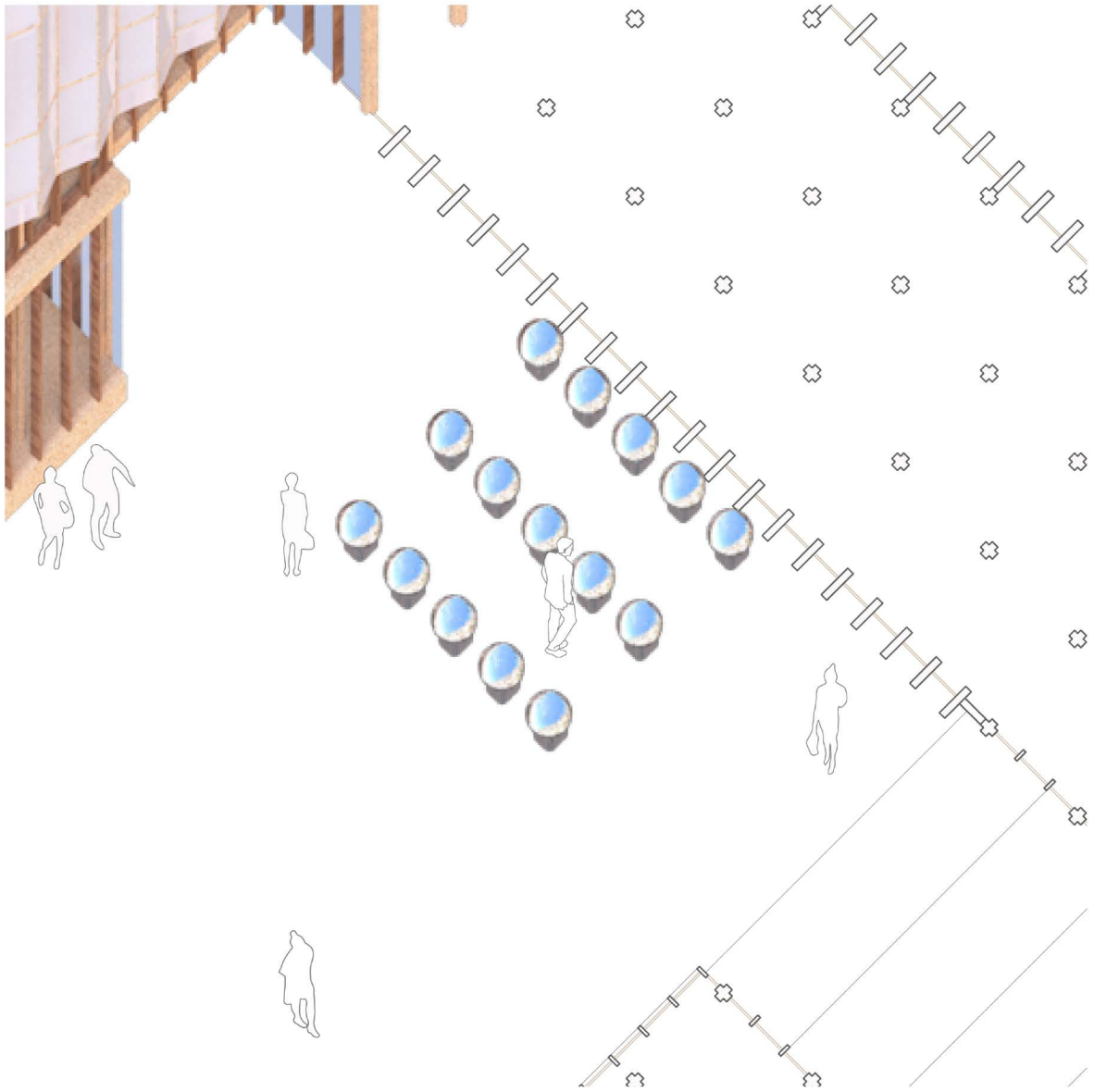
03 Waste sorting tools

At the building scale

Public collection pods

Tubos de coleccion publica

Inspired by the NYC 5th Ave Apple public plaza, these pods become sculptural waste collection points for the neighborhood. These ar engraved with sorting information, and use the same vertical tube and tray system to move the waste down to the waste processing space.

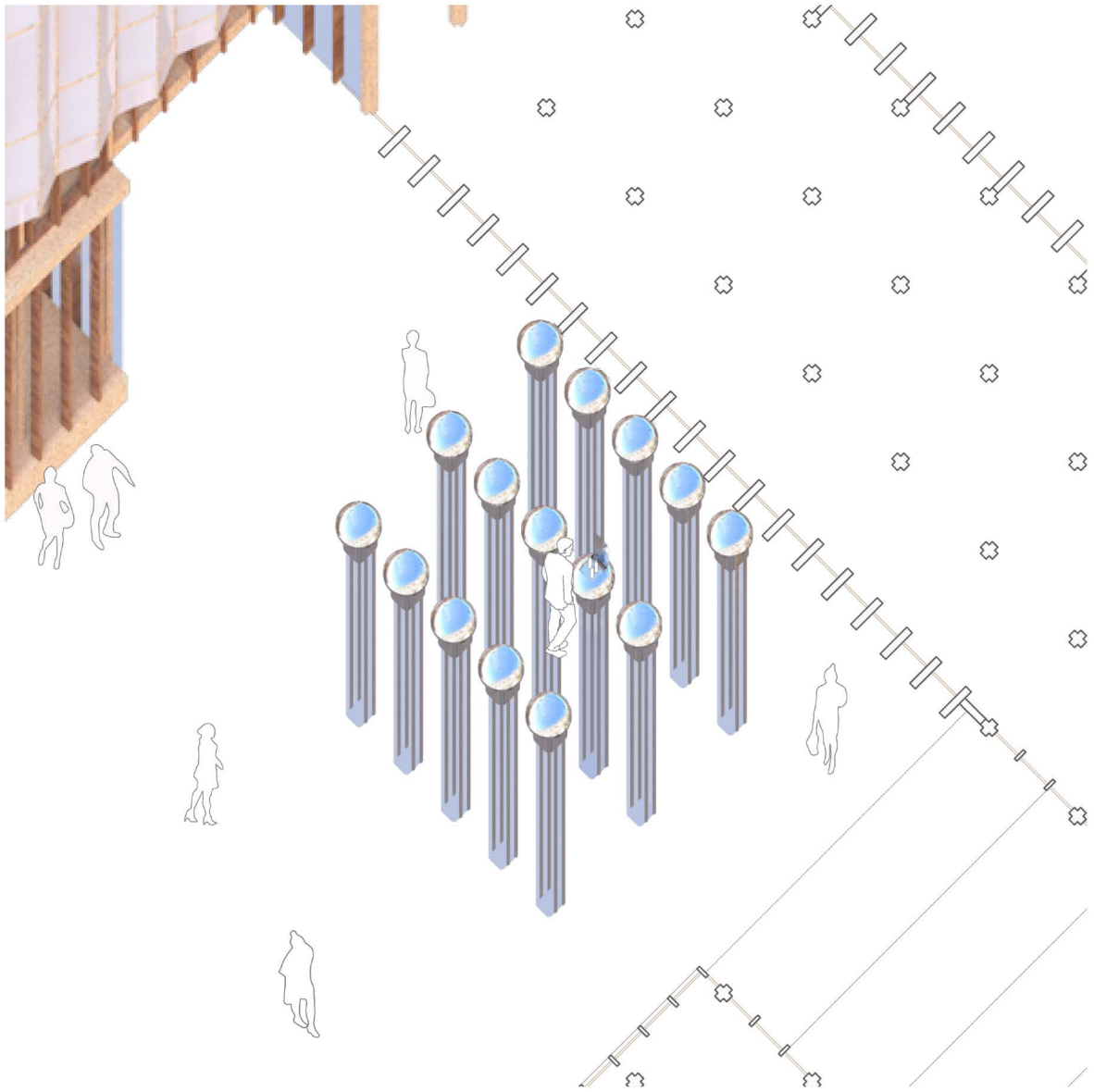


FINDING THE RIGHT POD

ENCONTRANDO EL COMPARTIMENTO ADECUADO

Now at the city scale, the neighborhood's users take their recyclables to the building's waste management stations. These are carefully labeled for each type of material classifications and take the form of sculptural elements on a central plaza.

Ahora a escala de la ciudad, los usuarios del vecindario llevan sus reciclables a las estaciones de gestión de residuos del edificio. Estas están cuidadosamente clasificadas para cada tipo de material y toman la forma de elementos escultóricos en una plaza central.

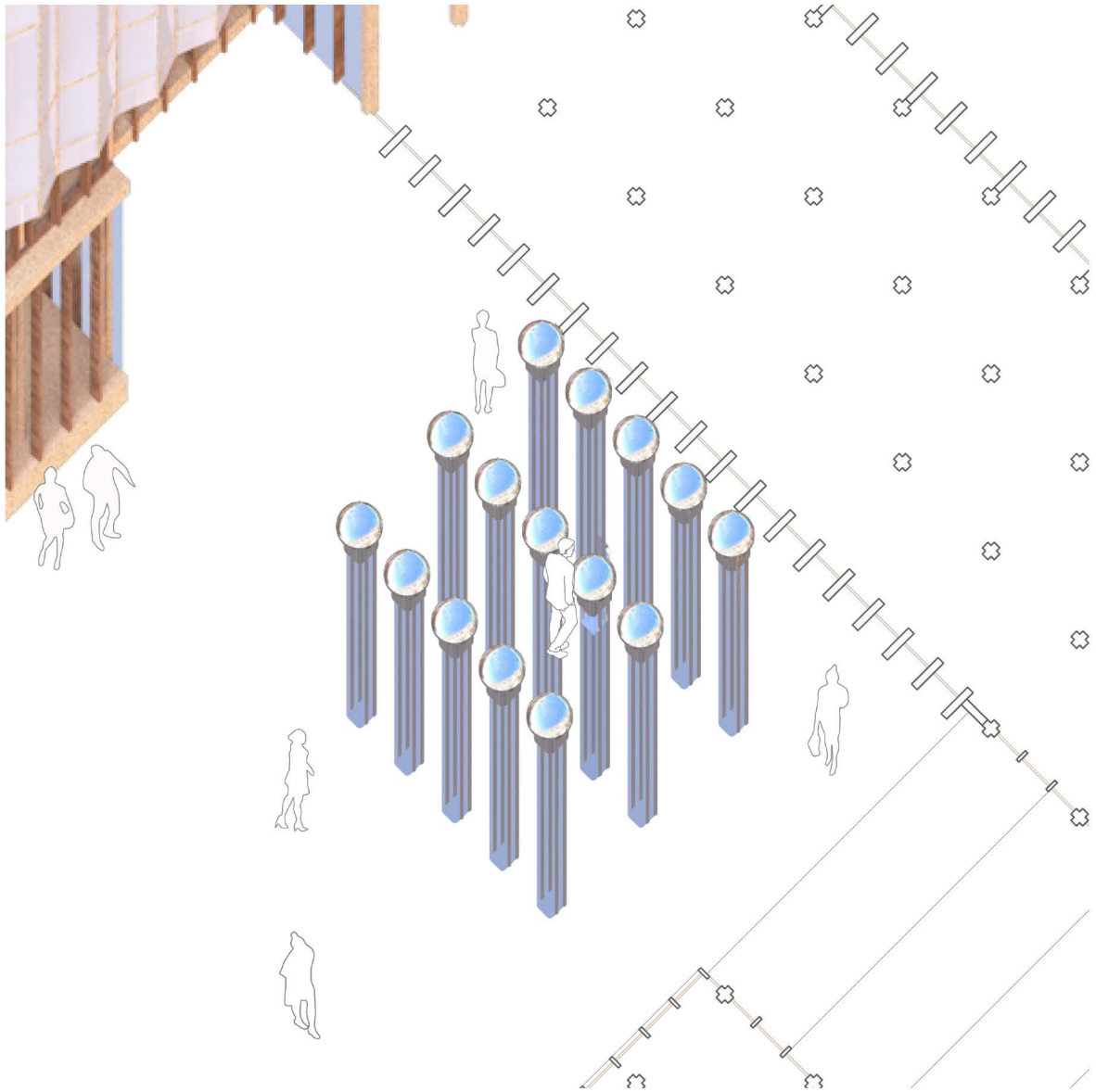


PLACING THE MATERIAL

INSERTANDO EL MATERIAL

The user opens the lid of the placement capsule in the pod and places materials onto the tray.

El usuario abre la tapa de la cápsula de la estación y coloca los materiales en la bandeja..



SEEING THE MOVEMENT

VIENDO EL MOVIMIENTO

Similar to the community scale, the user sees the waste trays go down the tubes to the waste processing facilities. Seeing the movement of waste trays going up and down the tower aims to serve again as an educational tool that "exposes the waste" into the public space.

Similar a la escala de la comunidad, el usuario observa las bandejas de residuos que bajan por los tubos hasta las instalaciones de procesamiento de residuos. El movimiento visible de las bandejas de basura subiendo y bajando por la torre tiene como objetivo nuevamente servir como una herramienta educativa que "expone la basura" en el espacio público.

“SOCIAL WASTE”

Breaking away from the traditional garbage room

One of the main goals of the project is to provide waste management spaces inclusive of social interaction, that expose, interact as well as normalize living and dealing with our own garbage.

“RESIDUO SOCIAL”

Rompiendo con la sala de basuras tradicional

Uno de los objetivos principales del proyecto es proporcionar espacios de gestión de residuos que incluyan la interacción social, que expongan, interactúen y normalicen la vida y el manejo de nuestra propia basura.

01
Individual Scale

02
Community Scale

03
Building scale

SORTING

Material classification, tools and the sorting control

As aforementioned, this building model aims to expand the dual recyclables system of New York City to one sorted by individual material classification. The blue bin and the garbage bin now get divided further into seven new categories and subcategories. These are managed and controlled at the large scale, utilizing waste management tools within the waste procesing facility space, aiming to control, process and prepare the sorted materials to be sent off to private manufacturers for re-use.

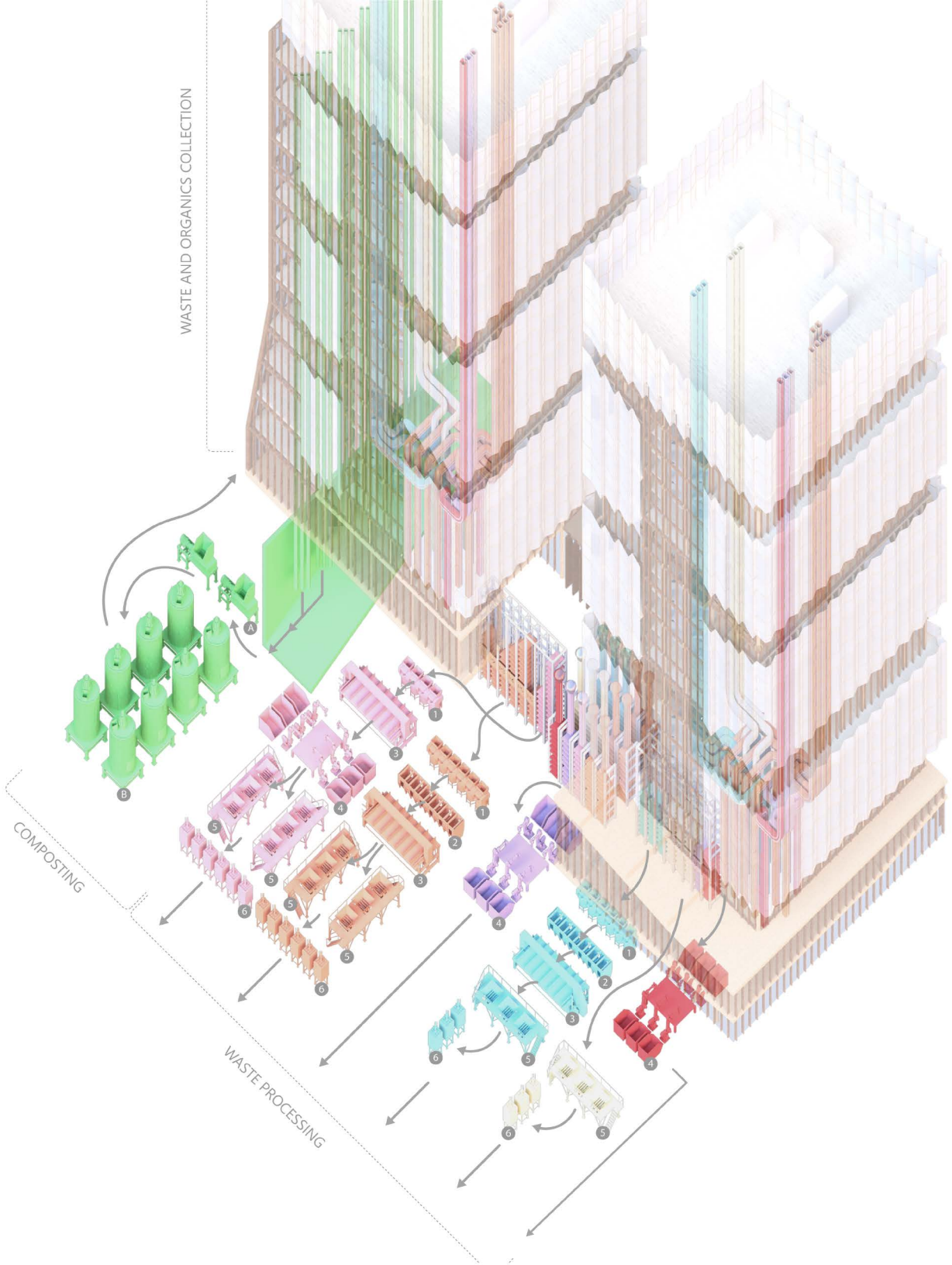
CLASIFICACIÓN

Clasificación de materiales, herramientas y sistema de control de clasificación

Como se mencionó anteriormente, este modelo de construcción tiene como objetivo expandir el sistema dual de reciclado de la ciudad de Nueva York a uno ordenado por clasificación de material individual. El contenedor azul y el contenedor de basura ahora se dividen en siete nuevas categorías y subcategorías. Estas se gestionan y controlan a gran escala, utilizando herramientas de gestión de residuos dentro del espacio de procesamiento, con el objetivo de controlar, procesar y preparar los materiales clasificados que se enviarán a fabricantes privados para su reutilización.

A NEW RECYCLABLES SORTING SYSTEM

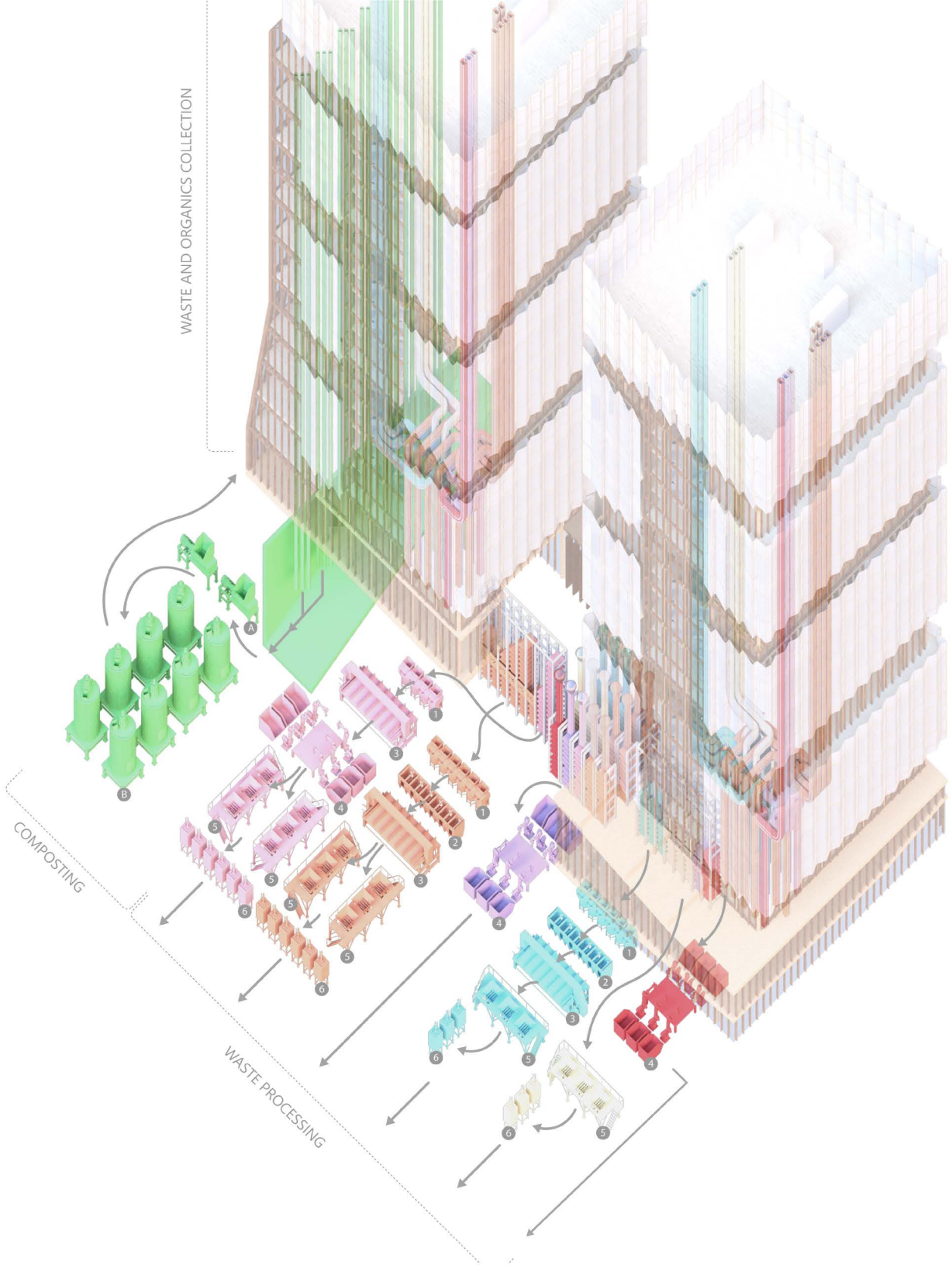
UN NUEVO SISTEMA DE DIVISIÓN DE MATERIALES RECICLABLES



WHERE DOES EVERYTHING GO?

The waste collection locations across the building, both at the individual and the public scales are connected to a system vertical tubes that transport the waste down to the processing facility, located in the building's basement and also visible to the user through the ground floor's education center.

The processing facility utilizes a complex system of sorting control and preparation for each type of material. Although the goal of this project is to eventually be able to execute adequate sorting at the user scale, our current waste situation indicates that this is a goal better envissioned in the long term, and that will require time for implementation. As a way to accommodate human error, the project incorporates control tools to ensure the divission has been done accurately before the material is processed to be sent away.



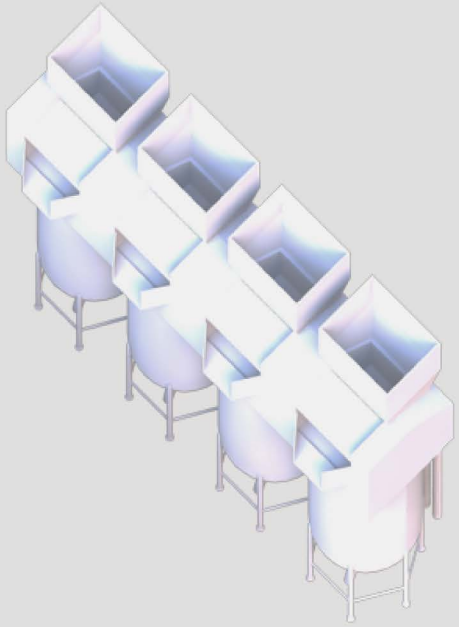
A DONDE VA TODO?

Las ubicaciones de recolección de desechos en todo el edificio, tanto a escala individual como pública, están conectadas a un sistema de tubos verticales que transportan los desechos a las instalaciones de procesamiento en el sótano del edificio, también visibles a través del centro educativo de la planta baja.

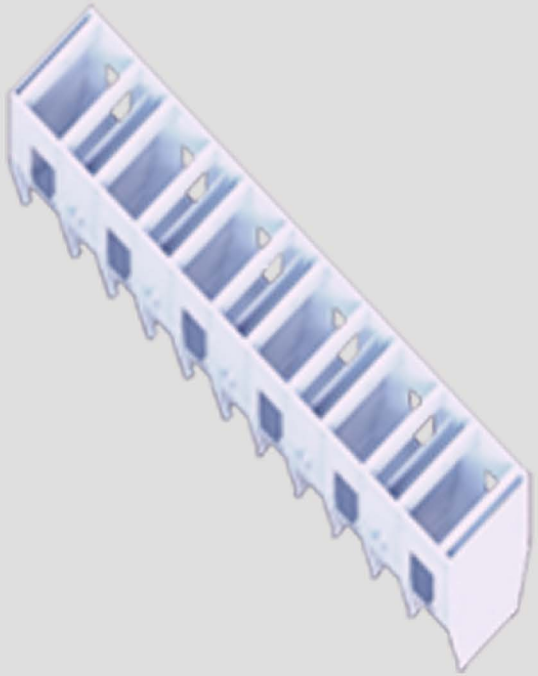
El espacio de procesamiento utiliza un complejo sistema de control de clasificación y preparación para cada tipo de material. Aunque el objetivo de este proyecto es eventualmente poder ejecutar una clasificación adecuada a escala de usuario, nuestra situación actual en cuanto a la basura en NYC indica que este es un objetivo mejor concebido a largo plazo, y que requerirá tiempo para SU completa implementación. Como forma de acomodar el error humano, el proyecto incorpora herramientas de control de separado de materiales para garantizar que la división se haya realizado con precisión antes de que el material se procese para ser enviado.

THE “TOOLS”

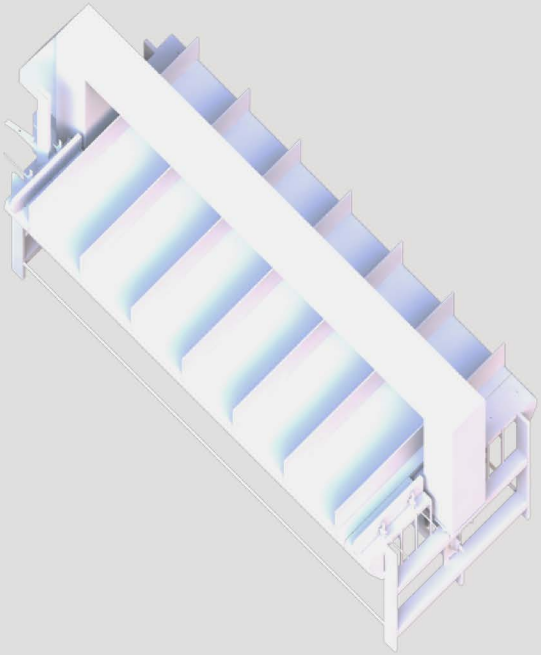
WASTE



1 Washers



2 Floating bed

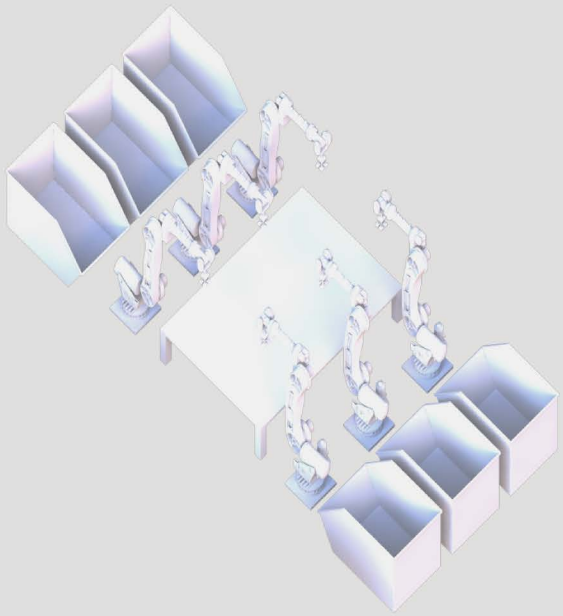


3 Metal sorter

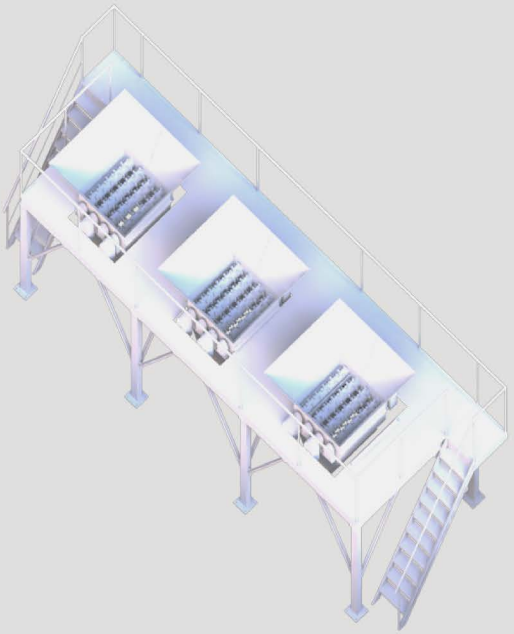
LAS “HERRAMIENTAS”

THE “TOOLS”

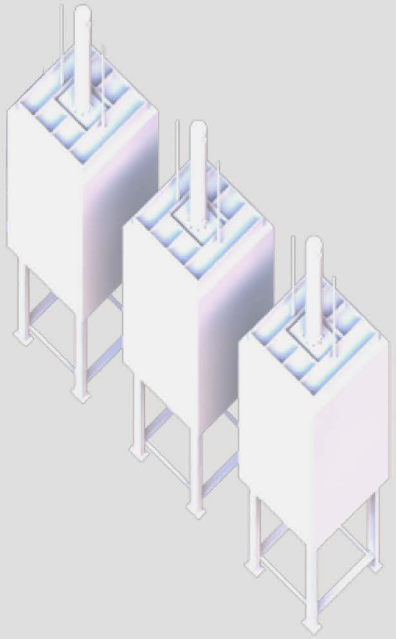
WASTE



4 Sorting/
Dismanting table



5 Shredder

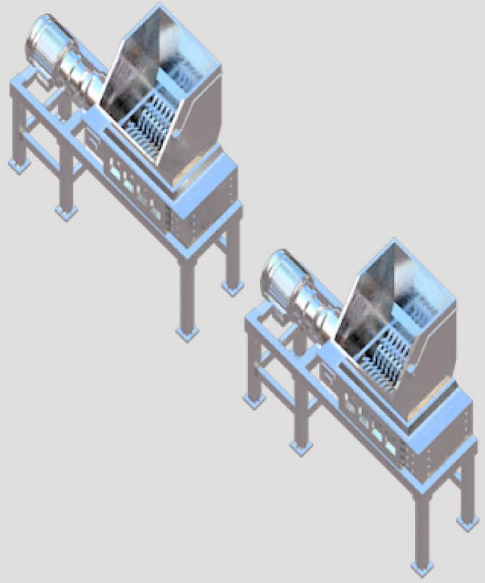


6 Bale presser

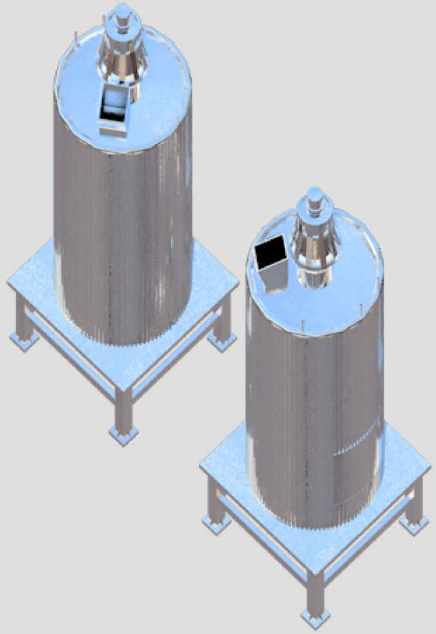
LAS “HERRAMIENTAS”

ORGANICS

THE “TOOLS”

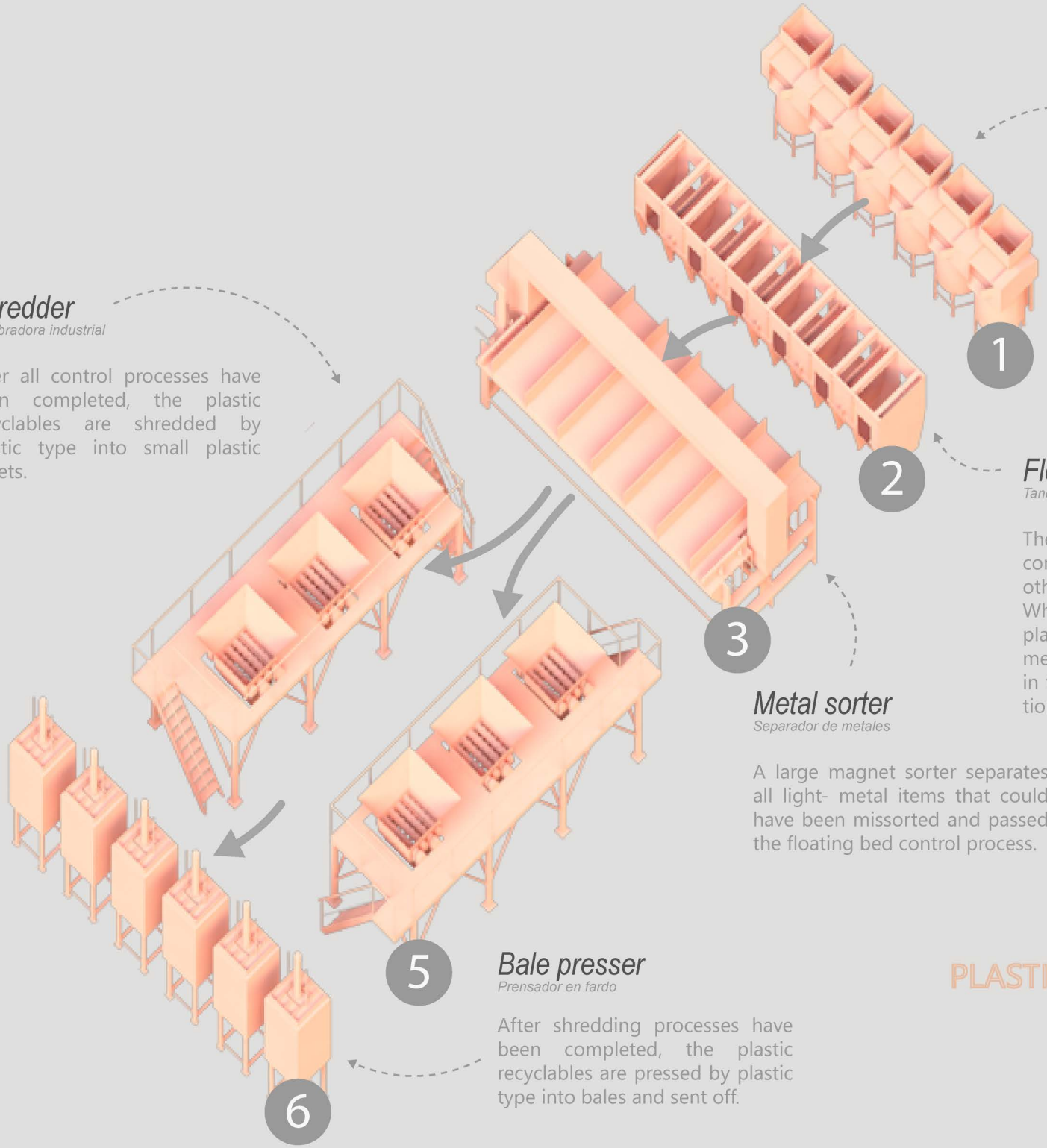


A Shredders



B In- vessel composting tanks

LAS “HERRAMIENTAS”



Washers
Lavadoras

To ensure that all items have been washed properly, the waste processing facility includes large-volume washers for each plastic material subtype.

Floating bed
Tanques de flote

The floating tanks serve as the main control tool for plastic materials from others that may have been mis-sorted. While going through the floating bed, plastic items will float, while heavy metals, glass and any other will remain in the tank for end- of day reclassification.

Metal sorter
Separador de metales

A large magnet sorter separates all light- metal items that could have been missorted and passed the floating bed control process.

Shredder
Desfibradora industrial

After all control processes have been completed, the plastic recyclables are shredded by plastic type into small plastic pellets.

Bale presser
Prensador en fardo

After shredding processes have been completed, the plastic recyclables are pressed by plastic type into bales and sent off.

PLASTICS

Sorting/ dismantling table

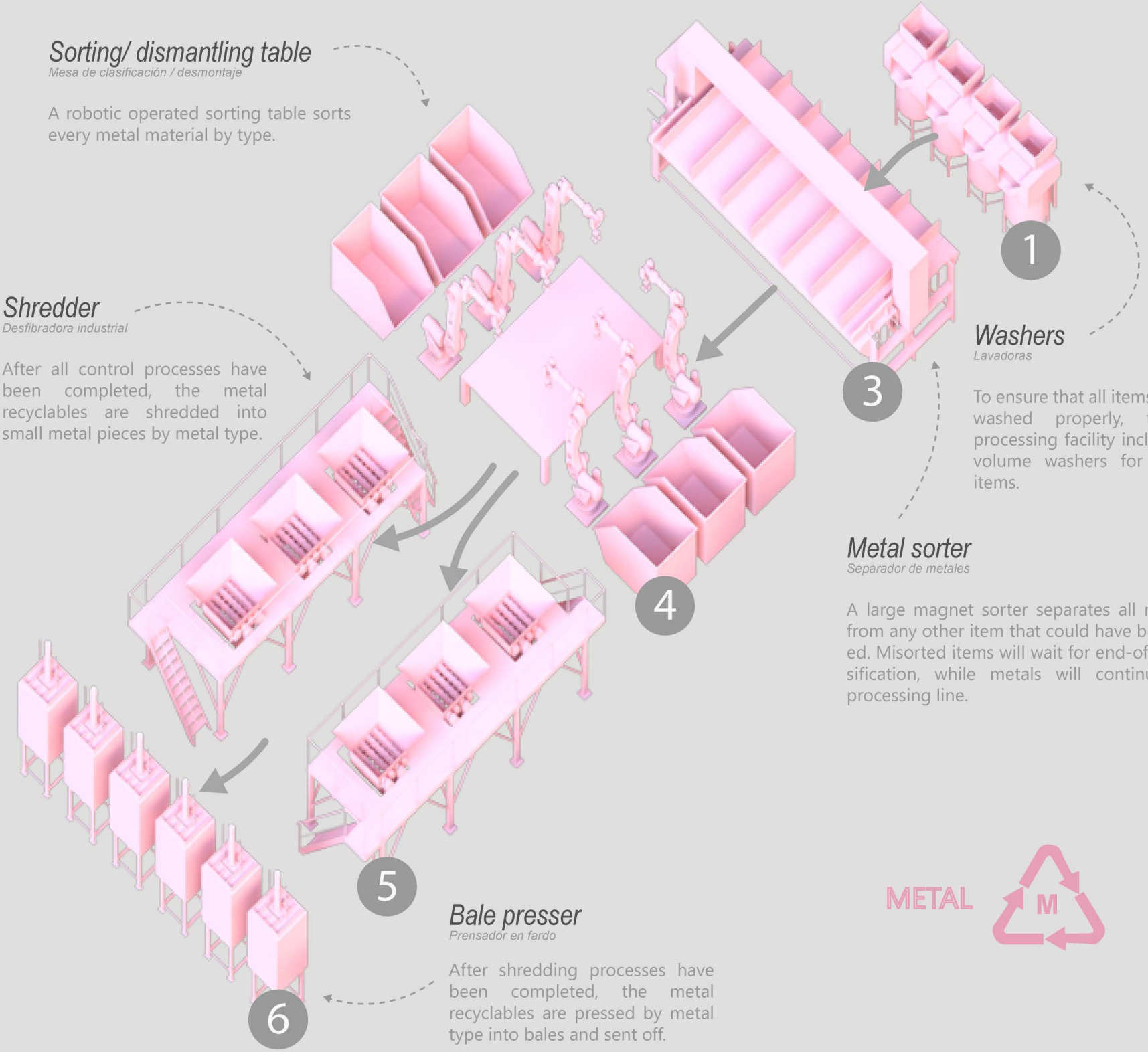
Mesa de clasificación / desmontaje

A robotic operated sorting table sorts every metal material by type.

Shredder

Desfibradora industrial

After all control processes have been completed, the metal recyclables are shredded into small metal pieces by metal type.



Washers

Lavadoras

To ensure that all items have been washed properly, the waste processing facility includes large-volume washers for the metal items.

Metal sorter

Separador de metales

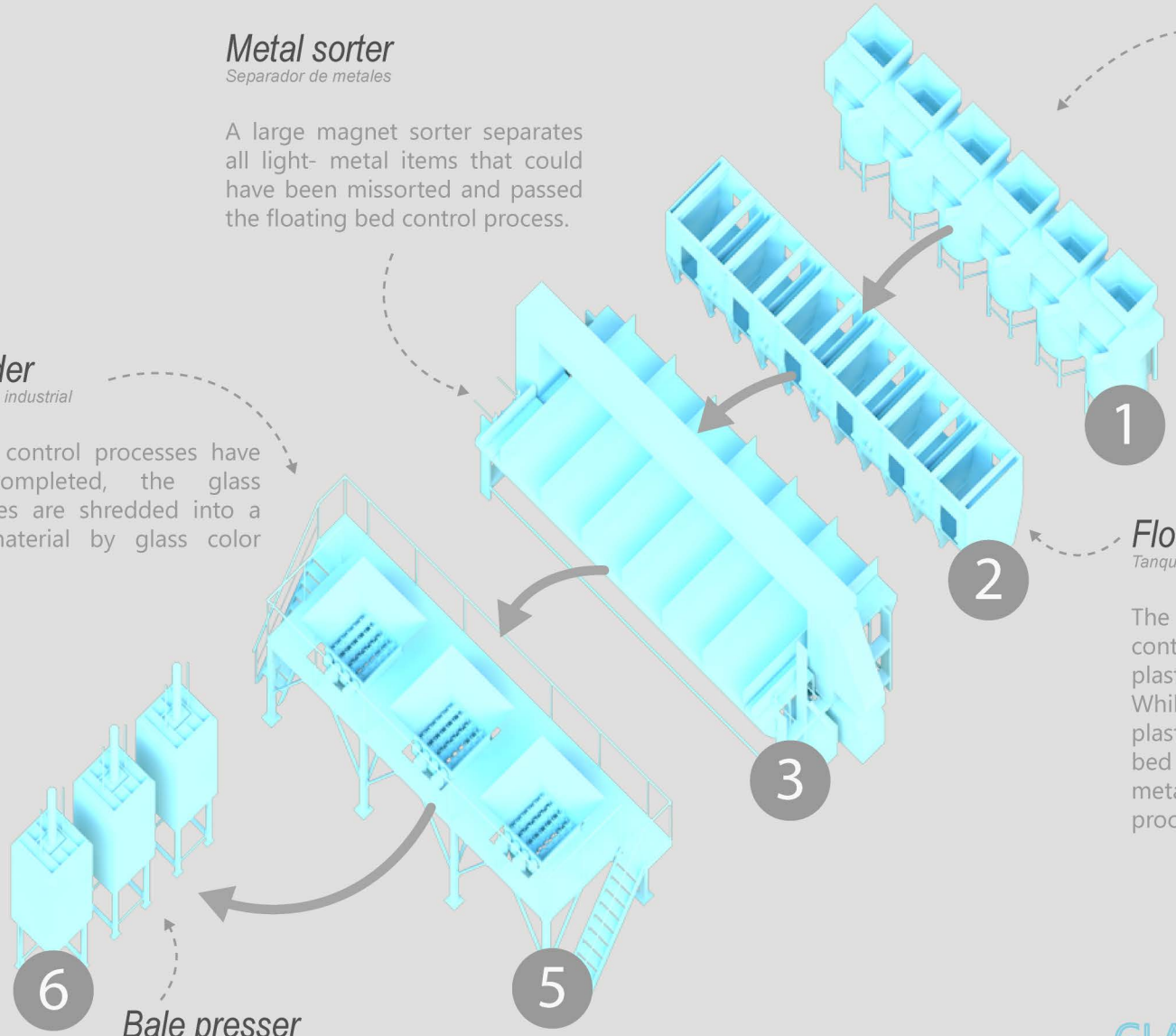
A large magnet sorter separates all metal items from any other item that could have been misorted. Misorted items will wait for end-of day reclassification, while metals will continue on the processing line.

Bale presser

Prensador en fardo

After shredding processes have been completed, the metal recyclables are pressed by metal type into bales and sent off.

METAL M



Metal sorter
Separador de metales

A large magnet sorter separates all light- metal items that could have been missorted and passed the floating bed control process.

Shredder
Desfibradora industrial

After all control processes have been completed, the glass recyclables are shredded into a sandy material by glass color type.

Bale presser
Prensador en fardo

After shredding processes have been completed, the glass recyclables are pressed and packaged by sand color type into bales and are later sent off.

Washers
Lavadoras

To ensure that all items have been washed properly, the waste processing facility includes large-volume washers for each glass material subtype.

Floating bed
Tanques de flote

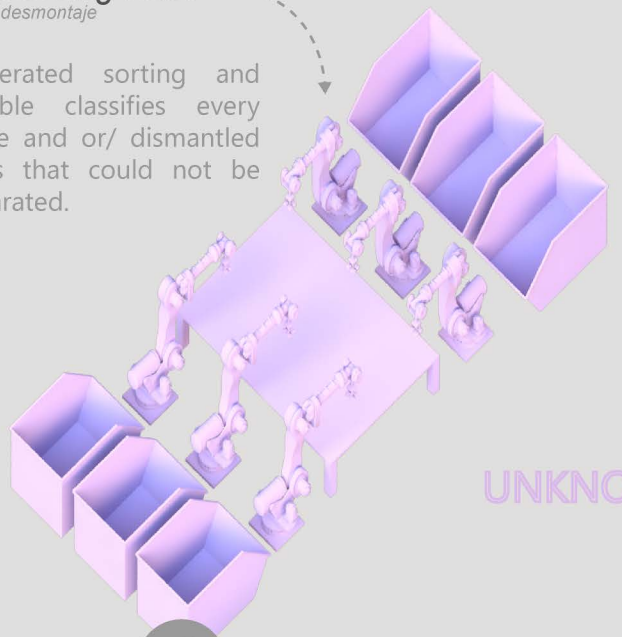
The floating tanks serve as the main control tool for glass materials from plastics that may have been mis-sorted. While going through the floating bed, plastic items will float and remain in the bed for end-of day reclassification, while metals and glass will continue on the processing line.

GLASS G

Sorting/ dismantling table

Mesa de clasificación / desmontaje

A robotic operated sorting and dismantling table classifies every material by type and or/ dismantled mixed materials that could not be individually separated.



4

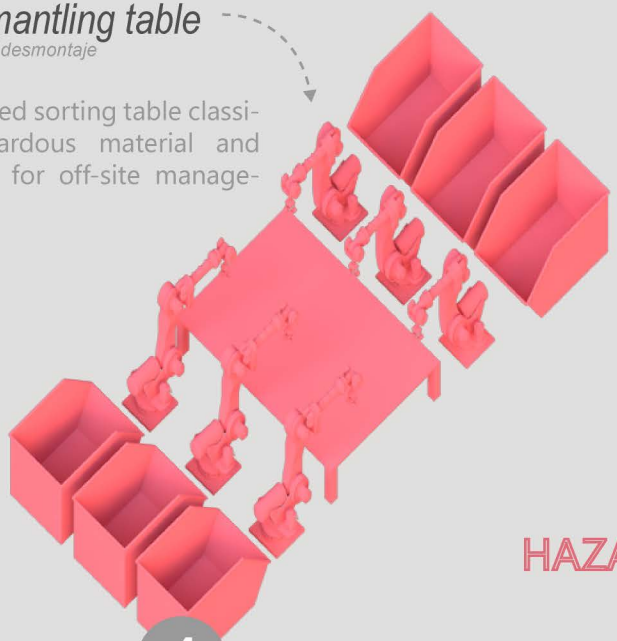
UNKNOWN

U

Sorting/ dismantling table

Mesa de clasificación / desmontaje

A robotic operated sorting table classifies every hazardous material and processes them for off-site management.



4

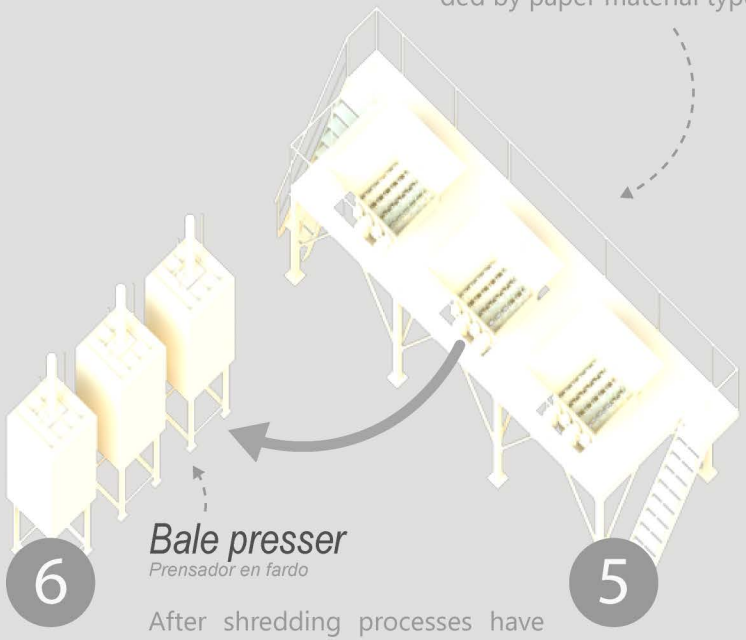
HAZARD

H

Shredder

Desfibradora industrial

The paper recyclables are shredded by paper material type.



6

5

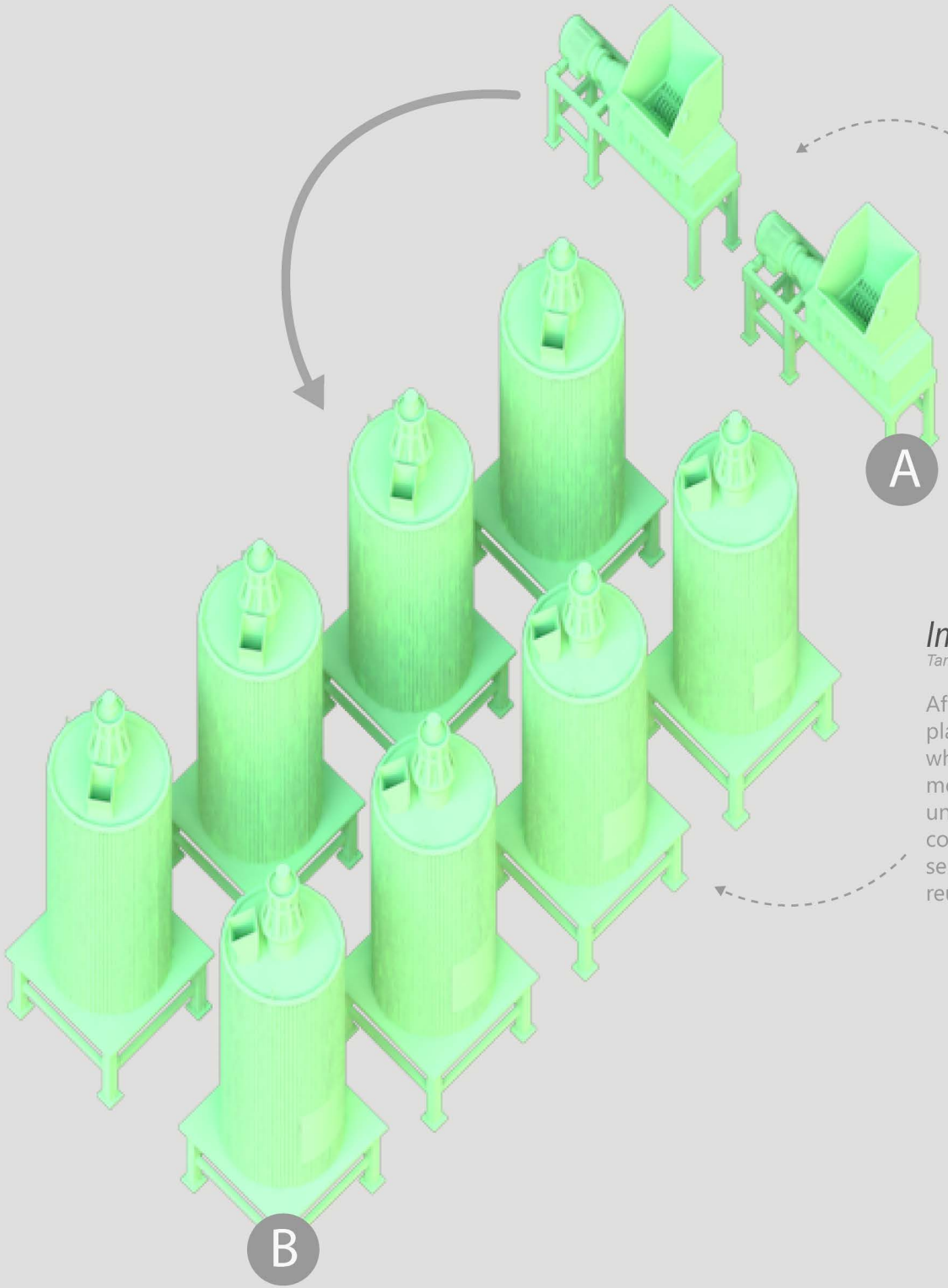
Bale presser

Prensador en fardo

After shredding processes have been completed, the paper recyclables are pressed and packaged by paper type into bales and are later sent off.

PAPER

C1



Organic Shredder

Trituradora de organicos

Organic refuse is shredded and mixed into a single material.

In- vessel composting tanks

Tanques de compostaje de recipiente

After shredded, the organic material is placed into vessel composting tanks, where it will sit for a period of three months and mixed at two-week intervals until the composting process had been completed. The resulting fertilizer will be sent to the building's greenhouse for reuse.

ORGANICS

AND... ORGANICS

Reducing garbage through the production of food

As a secondary goal, but one also fundamental to the successful functioning of the building model is to provide adequate spaces for the production of food and composting activities. By providing in-site opportunities to grow food for consumption for the building's residents, preservative packaging is no longer needed due to proximity principles, a large step towards the reduction of annual residential waste discharge values.

Y... ORGANICOS

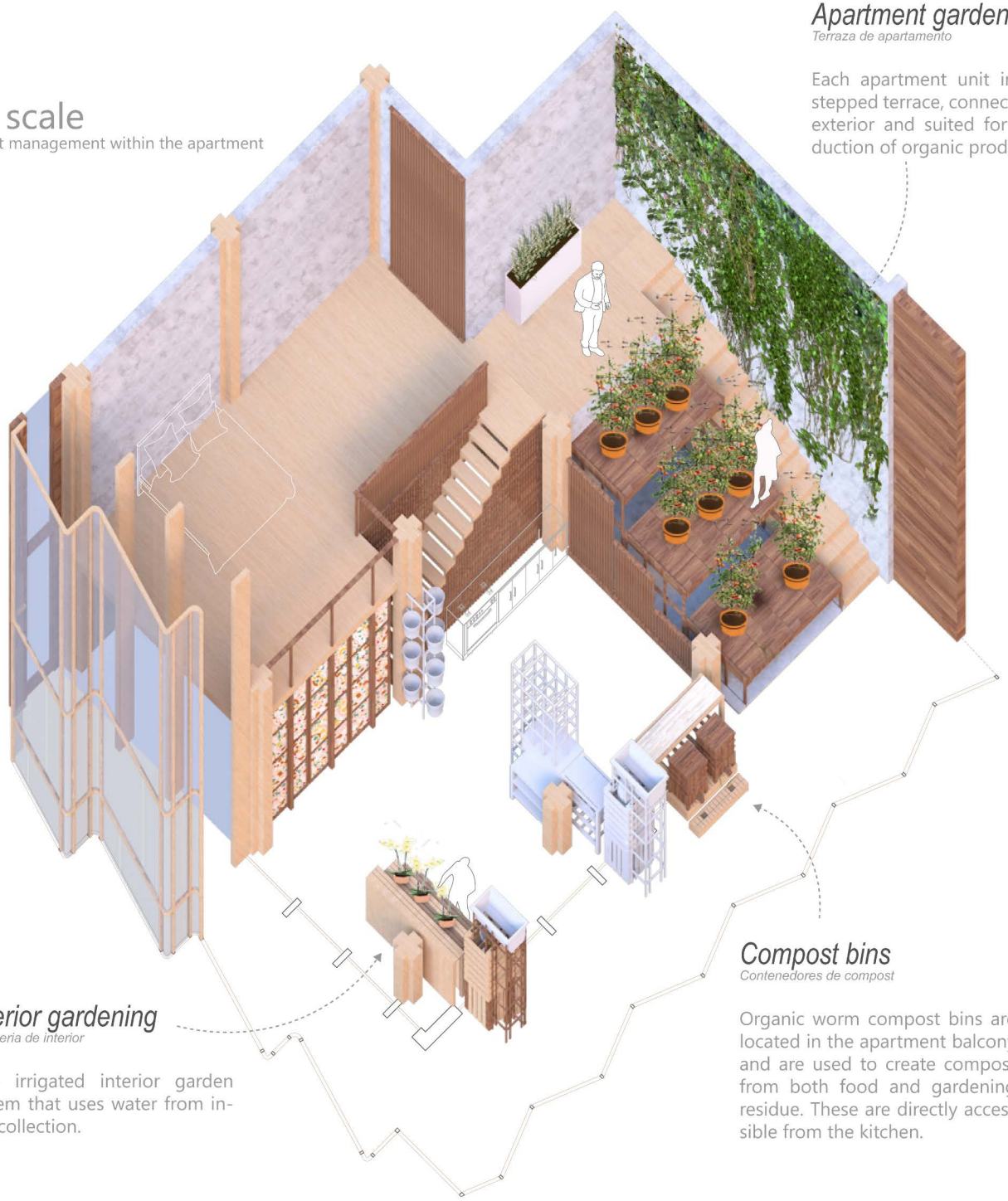
Reduciendo basura a traves de la produccion de alimentos

Como objetivo secundario, pero también fundamental para el funcionamiento de este modelo arquitectónico es proporcionar espacios adecuados para la producción de alimentos y actividades de compostaje. Al proporcionar oportunidades directas para el cultivo de alimentos para el consumo de los residentes del edificio y debido a principios de proximidad, ya no se necesitan empaques de preservación. Un gran paso hacia la reducción de los valores anuales de descarga de residuos residenciales.

01

Individual scale

Organics and compost management within the apartment



Apartment garden

Terraza de apartamento

Each apartment unit includes a stepped terrace, connected to the exterior and suited for the production of organic produce.

Interior gardening

Jardineria de interior

Self- irrigated interior garden system that uses water from in-site collection.

Compost bins

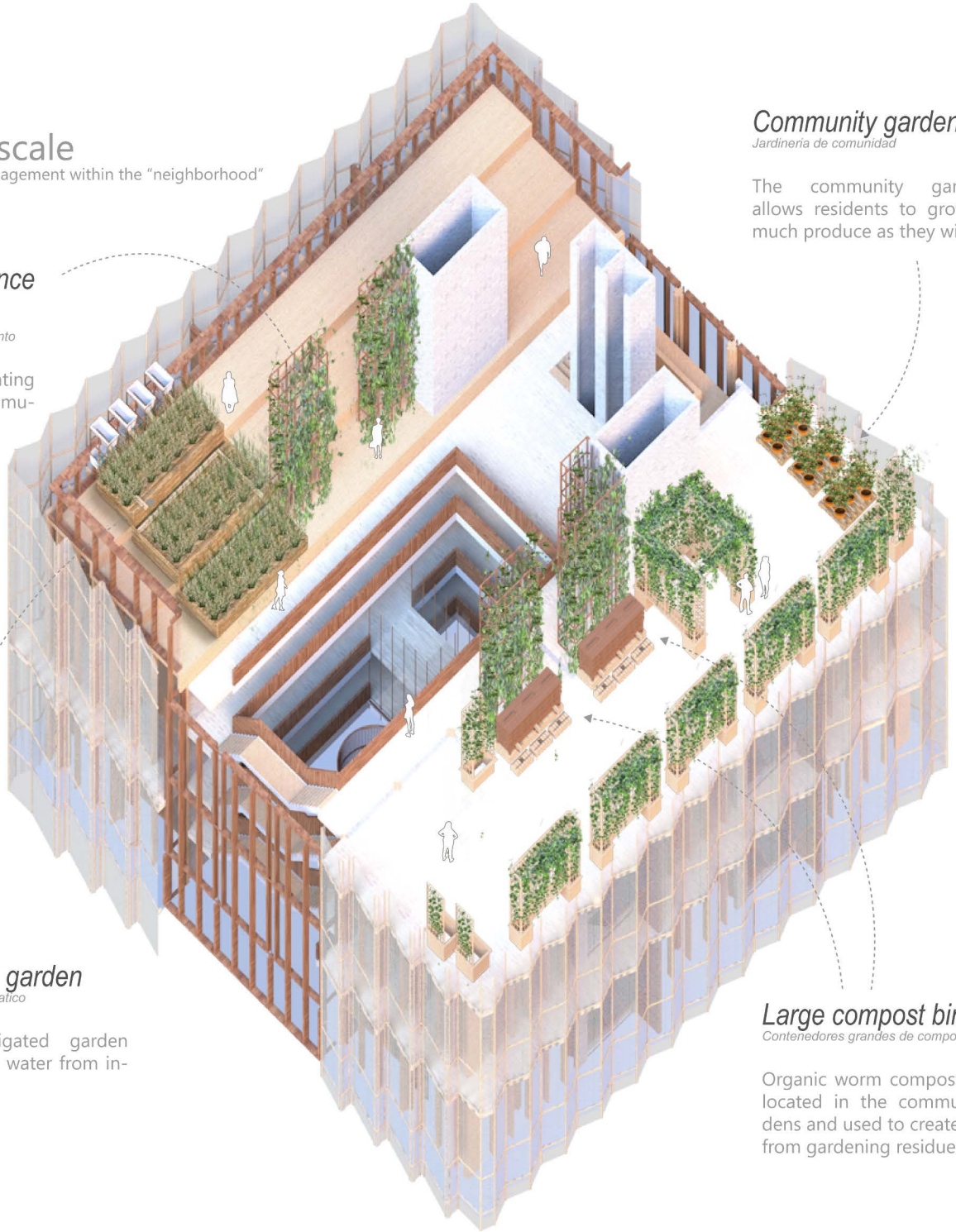
Contenedores de compost

Organic worm compost bins are located in the apartment balcony and are used to create compost from both food and gardening residue. These are directly accessible from the kitchen.

02

Community scale

Organics and compost management within the "neighborhood"



Community gardening

Jardineria de comunidad

The community gardens allows residents to grow as much produce as they wish!

Low- maintenance vegetation

Vegetacion de poco mantenimiento

Low maintenance planting is included in the community gardens.

Self-irrigated garden

Jardin de regado automatico

Large self- irrigated garden system that uses water from in-site collection.

Large compost bins

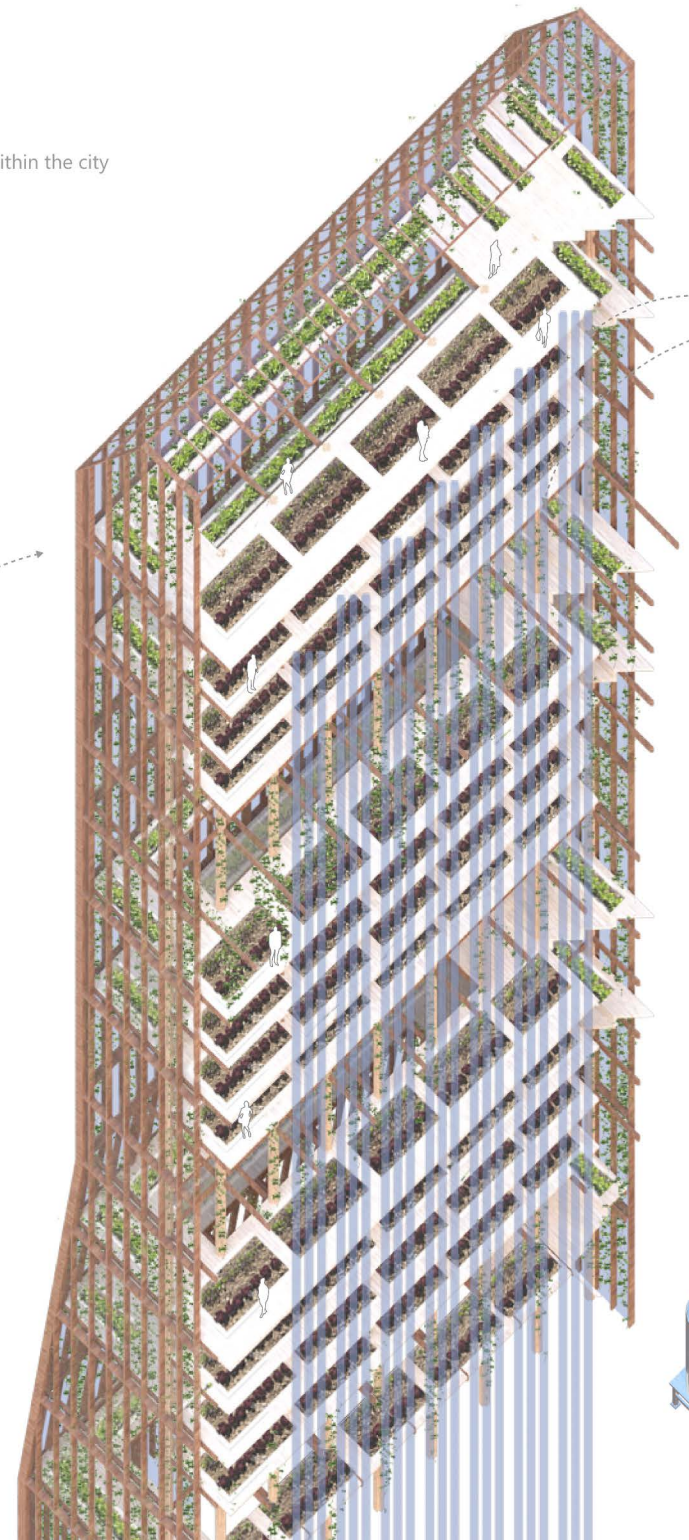
Contenedores grandes de compost

Organic worm compost bins are located in the community gardens and used to create compost from gardening residue.

03

Building scale

Organics and compost management within the city



Building compost collection tubes

Tubos de coleccion para compost

Similarly to the waste collection tubes in the residential towers, this vertical greenhouse includes tubes for the disposal of organics. These tubes will take the organics down to the building's large composting facility.

Vertical greenhouse

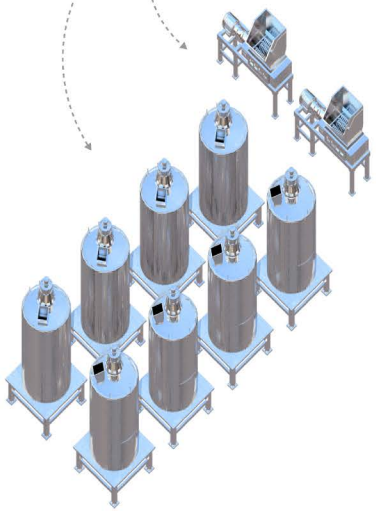
Invernadero vertical

Attached to the tower's facade, this vertical greenhouse serves as the building's main production of produce, through systems such as vertical farming and shallow- earth gar-

In-Vessel composting system

Systema de compost en-vessel

Located in the building's waste and composting facilities underground, this two-step composting system allows for the creation of organic fertilizer that can later be used in the greenhouse again.



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