



## MICROHOME PÁLYÁZAT

### ReCoHome

A microhome pályázat a Buildner és Kingspan közös pályázata, melyben egy olyan 25 nm maximális alapterületű házat kellett megtervezni, ami teljesen független a környezetétől, bárhol lerakható használható, és teljes mértékben öneltartó mind víz, fűtés és villany tekintetében.

Horváth Gergely barátommal, és szaktársammal közösen egy 2 fős csapatban ki is alakultak a fejünkben a koncepció fő pontjai.

Elsődleges szempont volt, hogy segítsünk a projektünkkel a környezeten, elvégre az építőipar felelős leginkább a környezetszennyezésért és a CO2 kibocsátás túlnyomó többségéért. Így aztán olyan konténerek felhasználása mellett döntöttünk, mivel a világon több mint 11 millió használaton kívüli konténer áll üresen. Így ezek átalakításával, a konténer alapvető szerkezetét meghagyva, költséghatékonyan (körülbelül 500\$ értékben kaphatunk egy beépítésre kész szerkezetet).

Második fő szempont az volt, hogy egy olyan szociális problémát oldjunk meg, ami velünk hallgatókkal is kapcsolatos, és a mindennapi életünkben fellelhető. Ebből kiindulva olyan diákotthonok megteremtése mellett döntöttünk, amik kombinálhatóak, és összekapcsolhatóak, így olyan diákközösségek tudnak kialakulni, mellyek során a diákok tudnak együtt dolgozni és fejlődni a tanulmányaikban.

Harmadik szempont volt hogy a városban és vidéken egyaránt használható legyen és könnyedén szállítható, ebből kifolyólag is tökéletes választás volt a konténer, mivel már egy kiforrott szállítási rendszer van kiforva rá.

A kombinálhatóság a városban és vidéki környezetben más és más szempontok alapján történik.

A vidéki felállásnál egy horizontális irányban való terjeszkedés van, ahol egy kereszt formában a konténer végei csatlakoznak egymáshoz, majd egy egybenyílt teret lehet kialakítani.

A városi területeken a foghíj telkeknek beépítésére lenne lehetőség, így a városokban tanuló diákok lakhatási problémáját oldaná meg az emelkedő lakbérek és lakásárak mellett.

Herdics Szabolcs, Horváth Gergely

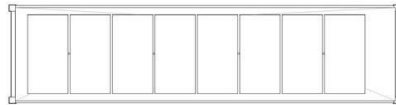


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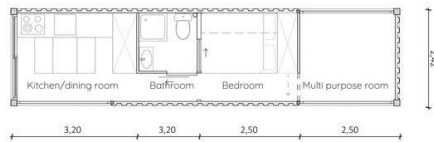
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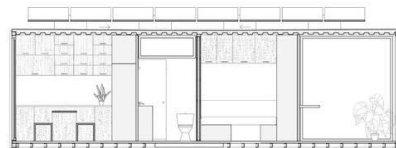
Top view



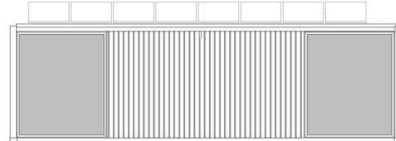
Floorplan



A-A Section



Elevation



**Proposals:**

We propose a sustainable solution to the pressing urban challenges of housing affordability, underutilized resources, and regulatory constraints. By repurposing 40-foot unused shipping containers, we offer a transformative approach to creating microhomes that address these issues head-on.

**Housing Affordability:**

In many major cities, the soaring costs of living present a formidable barrier for students and young couples. With limited financial resources, they often find themselves unable to afford apartments within city centers, forcing them to settle in distant suburbs far from their universities or workplaces. This not only entails long and exhausting daily commutes, but it also deprives them of the vibrant community experience they crave. Unlike the enriching environment found in college campuses, where students collaborate, socialize, and support one another, suburban living can be isolating and devoid of the youthful energy they seek.

**Firewall sites:**

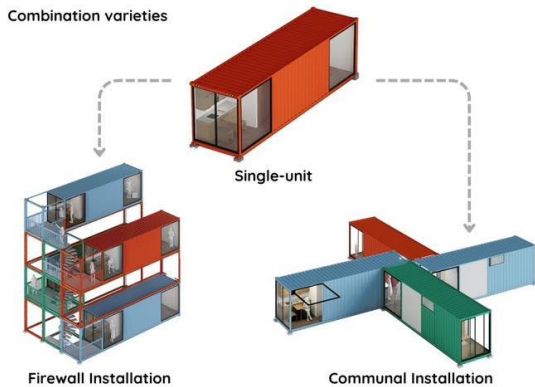
In large cities, like Budapest face the problem of firewall sites, each one of these site have their own reason why they do not have a building on them, there are too strict restrictions or they have not been bought yet, and the city can not do anything about them. They can not make park our could social housing on them, they are unusable places.

**Underutilized Shipping Containers:**

Meanwhile, across the globe, a vast number of unused shipping containers languish in neglected areas such as railway stations, ports, and abandoned lots. These sturdy containers, designed for durability, remain largely untouched despite their potential for repurposing into habitable spaces.



Combination varieties



Firewall Installation

Communal Installation



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#### Container Modification:

A standard 40-foot container provides more space than the enabled maximum of 25 square meters. To meet this requirement, we strategically modify the container by cutting its trapezoidal sheet walls and shifting two columns inward by 2.5 meters. This adjustment precisely aligns with the desired 25 square meter floor area, optimizing space utilization without compromising structural integrity.

#### Insulation and Energy Efficiency:

To ensure comfort and energy efficiency, we insulate the container with 8cm thick fiber wool insulation from the inside. This insulation layer minimizes rapid cooling and helps maintain a comfortable indoor environment. Additionally, we employ a heat pump for heating, leveraging energy-saving technology to minimize energy consumption and reduce environmental impact.

#### Solar Power Generation:

Harnessing renewable energy sources, we integrate adjustable tilt angle solar panels on top of the container. These solar panels are designed to follow the sun's path, maximizing energy generation efficiency. By optimizing their orientation, we mitigate energy loss, ensuring consistent electricity production even in varying sunlight conditions.

#### Water Management and Storage:

Incorporating sustainable water management practices, we implement a rainwater collecting system that directs water to a tank installed under the floor. This innovative approach not only collects rainwater for various uses but also acts as secondary insulation, further enhancing the container's energy efficiency and thermal performance.

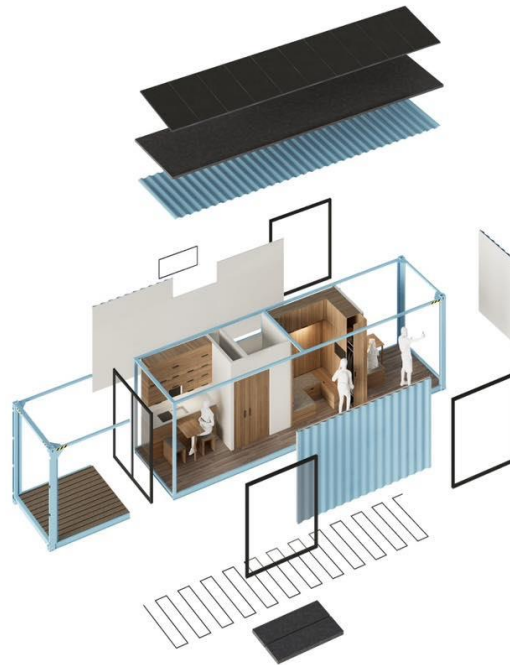
#### Energy Storage Solution:

To store excess electricity generated by the solar panels, we install two large batteries beneath the container's floor, strategically positioned between its structural C beams. This efficient energy storage solution ensures uninterrupted power supply and maximizes the utilization of renewable energy resources.

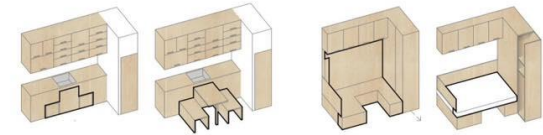
#### Dynamic furniture

Our microhomes feature dynamic furniture designed to maximize space and functionality. Each piece serves multiple purposes, such as a sofa that transforms into a bed, foldable tables, and modular storage units. This flexible design allows residents to easily adapt their living space to different needs, ensuring comfort and efficiency in a compact environment.

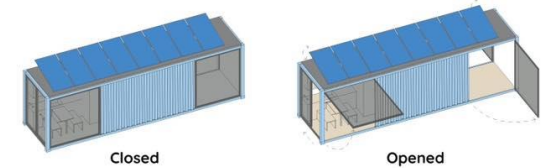
Explosion Diagram



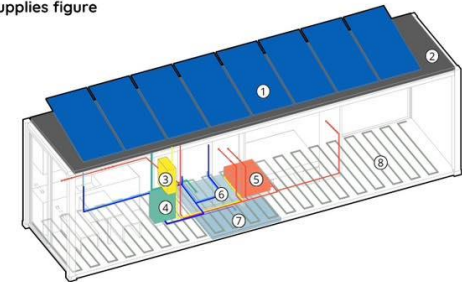
Dynamic furniture



Opening Variations

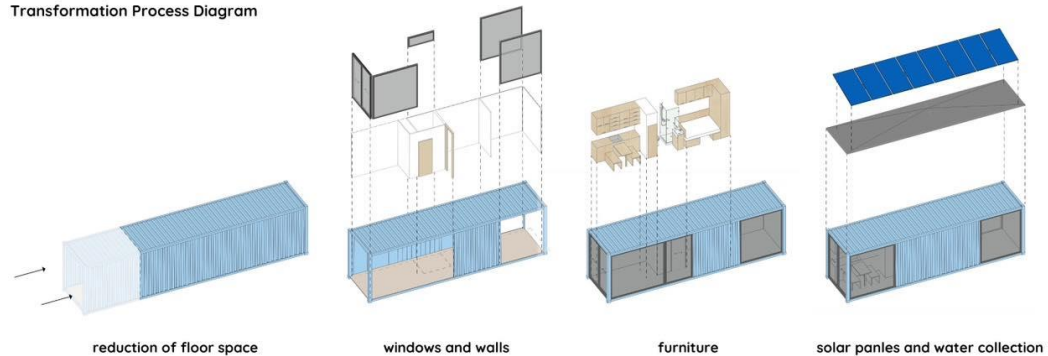


Supplies figure



1.Solar panels 2.Rainwater collecting system 3.Converter 4.Heatpump  
5.Lithium battery 6.Grey water tank 7.Rainwater tank 8.Floor heating

Transformation Process Diagram



reduction of floor space

windows and walls

furniture

solar panels and water collection



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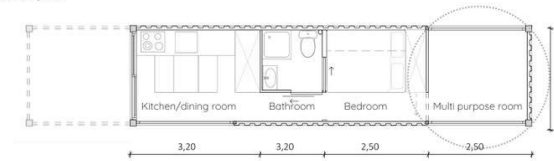
### ReCoHome

Budapest map of unused firewall sites

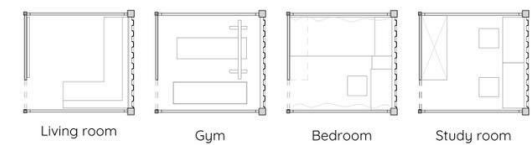


● Railway system ● Empty site ● Green areas

Floorplan



Multi purpose room variations



#### Proposal for firewall sites:

In our proposal, we advocate for a **temporary arrangement** with the owners of these vacant sites, allowing us to utilize them until they are needed for alternative purposes. This flexible approach maximizes the use of **underutilized urban spaces** without committing them to permanent development. Should the need arise for the sites in the future, our modular microhomes can be easily disassembled and transported to new locations. Leveraging the inherent **mobility** of shipping containers, we offer a seamless transition process that minimizes disruption and maximizes adaptability.

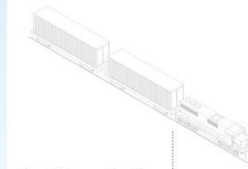
By integrating these strategies into our proposal, we not only address the immediate challenges of housing affordability and underutilized urban spaces but also lay the foundation for a **dynamic** and adaptable approach to urban development. Our vision embraces **sustainability**, flexibility, and innovation, empowering communities to thrive in an ever-changing urban landscape.

#### Transportation Logistics:

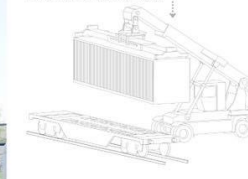
Shipping containers are renowned for their ease of transportation, offering versatility in logistics. To transport our modular microhomes to their designated sites, we employ a range of transportation modes including trailers, trucks, ships, or trains. This multi-modal approach ensures **efficient** and **cost-effective** delivery to diverse urban locations, overcoming geographical barriers and logistical challenges. By utilizing existing transportation infrastructure, we streamline the deployment process and optimize resource utilization, enabling rapid implementation of our sustainable housing solution.



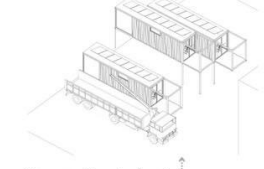
Transporting by train



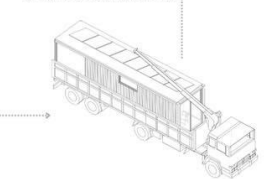
Container unloading

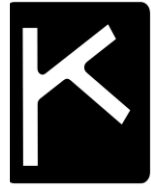


Deploying containers at sites



Transporting by truck





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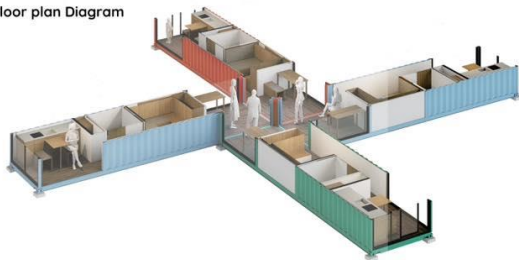
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Floor plan



Floor plan Diagram



Our second proposal extends beyond individual microhomes to create **dynamic community-centric complexes**, fostering social interaction and healthy lifestyles among residents. By connecting four 40-foot microhomes at their ends, we form a **centralized shared space** measuring 20 square meters. This communal area serves as a versatile hub for various **indoor activities**, including studying, movie nights, gaming sessions, small gym workouts, and collaborative projects. The flexible design allows residents to open up the shared space, creating a seamless indoor-outdoor flow and encouraging communal gatherings.

#### Empowering Student Communities

Our initiative provides affordable, community-oriented housing that empowers student communities to thrive. **Shared spaces** and recreational amenities foster social cohesion, collaboration, and well-being, enabling residents to build lasting friendships, achieve academic success, and maintain a balanced lifestyle.

#### Integrated Grid System

We envision microhome complexes within a **grid system**, allowing roads to traverse between them. This layout enhances navigation and accessibility, integrating the complexes into the urban fabric for a cohesive, interconnected environment that promotes community engagement.

#### Enriched Outdoor Amenities

Our proposal includes outdoor amenities such as **parks, basketball courts, and volleyball courts** between the microhome complexes. These spaces support recreational activities, social interaction, and a healthy lifestyle, enhancing the residents' overall experience.

