

Honey Climb is inspired by nature and biomimicry. The main goal is to close the plastic packaging loops by bringing them back to the city as functional pieces.





his initiative revolves around Circular Additive Manufacturing and its application in urban spaces. Circular AM is a new approach related to waste recovery and the creation of new products for cities. Using Circularity and AM as separate disciplines provides information and new insights for waste treatment.

Practices related to recycling materials and new approaches for local manufacturing. By combining both sectors, food packaging can be transformed into urban infrastructure as functional pieces. This procedure extends the life of the plastics used and combines different flows from industries, shops, households and citizens.



oney Climb is the first series of products around 3D printing and its application in cities. By being part of citizen physical activities such as their training, we offer 3D printed boulder holds and training boards for climbing. Through the use of scanning, design and additive manufacturing, Wageningen University & Research and Astro Mx join forces to develop circular and functional products. This initiative allows actors to keep track of the materials used and the future possibility of recycling them again after usage (5 to 10 years).











## BOULDER HOLDS AND TRAINING BOARDS

Renders and prototypes 3D printed with PETG (Yellow).













ature as instructor:

Natural hexagonal patterns (honeycomb) are used by bees to build. Bees concentrate all the energy to create some of the most perfect shapes nature can create. These chambers or cells are unbeatable for efficiency, structure and material reduction considered a natural masterpiece. Using this pattern it is possible to obtain the hardness that the holds and training boards need in climbing. For being both light "ultra-portable" and resistance proof needed to support the weight of a climber of up to 180kg in a few square centimeters. By applying this pattern in additive manufacturing, time and materials used are optimized, as well as an artistic aesthetic that nature provides.





he aim of this initiative is to bring back resources in cities by the mechanical transformation of plastics in a local level. The use of circular and functional design provides new options for urban furniture. By the creation of Honeyclimb, we are trying to bring back plastic to cities as functional pieces that can be used by cities in urban spaces.

With the use of 3D printing and plastic recycling, citizens can be incentive to make sports and feel in contact with the surrounding, the same way climbers connect and interact with nature.

The use of solid waste flows as a main source of materials create a cycle in which resources can be looped. By the identification of several plastics flows in cities, materials can re cycled back several times and become part of the entire system. This allow city actors to participate and monitor waste after is recycled.

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dditive Manufacturing is a novel technology capable to transform the current city system. By the use of this technology, products can be manufactured in a local way. The use of local waste materials such as plastic packaging provide a key differentiator to this novelty. By the creation of local solutions materials can be cycled without losing value.

Astro Mx and Wageningen University and Research join forces to develop circular design in order to close waste plastic loops at a city level. The design of city furniture and creative solutions allow citizens to enjoy and learn about their environment in a healthy way. Cities is the perfect space for citizens to connect with each others, Honeyclimb is the first of a series of designs made for urban spaces.

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## istory and Rock

Rock climbing requires a unique physical and psychological preparation in the sport. The sensation of touching the relief and managing to climb using only the body produces an always positive attitude and a unique sensation in each climber. In order to position itself as an Olympic sport in 2021, it took more than a century of technological advances and human capabilities to make the sport as safe and complete as any other. In Mexico, specifically in Pachuca Hidalgo, the first steps are taken in the "ascent", literally speaking, of this sport. Thanks to its multiple natural rock formations, and its unique history in the mining manufacturing of the region. Pachuca has established itself as the birthplace of rock climbing and the candidate for urban circularity that the country needs.



