



Global Issues Opportunities for recycling

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Ten Innovative Concrete Products

THAT MITIGATE GLOBAL ENVIRONMENTAL ISSUES AND CONTRIBUTE TO THE CLOSED CYCLE OF RAW MATERIALS



Innovative
concrete
products



3 Pilot Projects



Replace Primary Raw Materials of Concrete Precast Products



Replace Primary Raw Materials
of Concrete Precast Products
With high-quality Materials from
Re-cycled Construction Demolition Waste



- Develop new, innovative prefab concrete products
- With EU market potential
- Show opportunities for recycled CDW material

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- HOWEVER, RECYCLING INTO CONCRETE PREFAB PRODUCTS STILL HAS ENVIRONMENTAL IMPACT REGARDING ENERGY CO2 AND HEALTH
- WORLD IS UNDER THREATS OF CLIMATE CHANGE AND OTHER GLOBAL ISSUES



Air Pollution



Chemical pollution



Resource Depletion



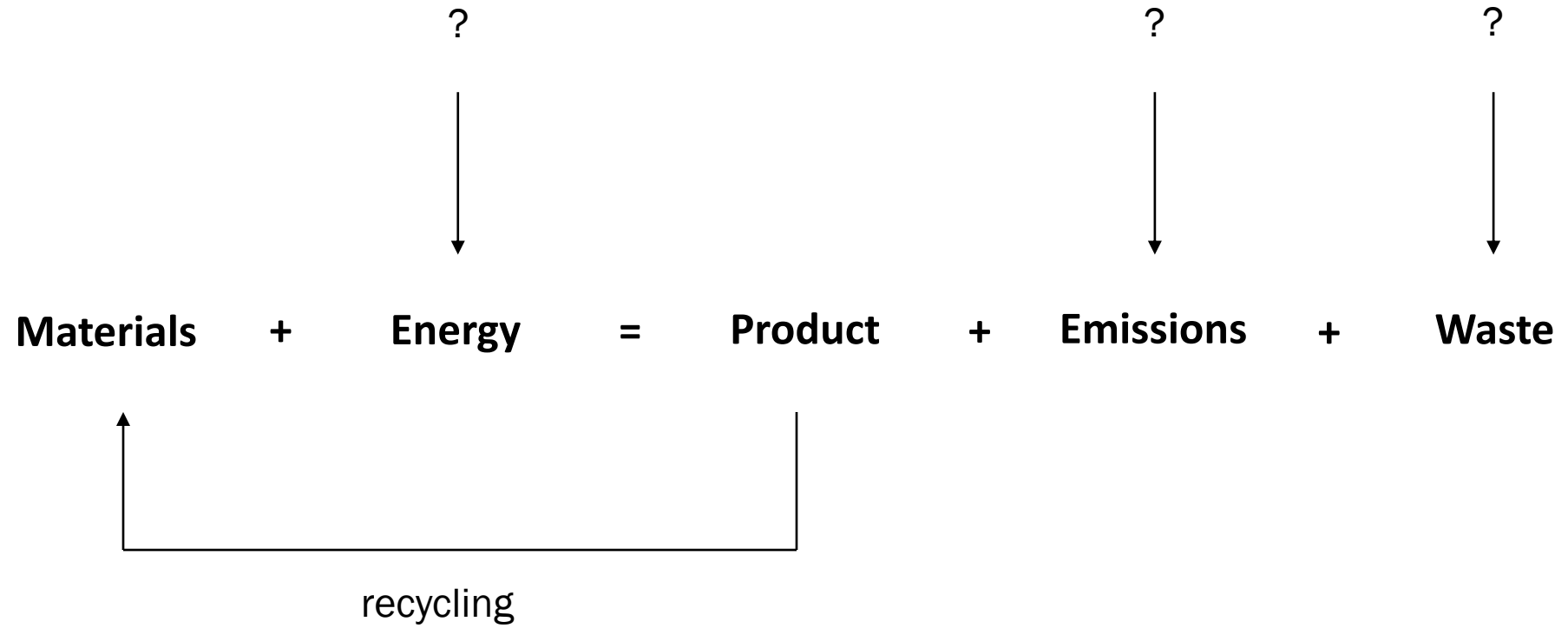
Fresh Water Scarcity

2017

2018



Biodiversity Loss



- TO TAKE RESPONSIBILITY FOR THE DAMAGING IMPACT THAT PRODUCTION AND USE IN GENERAL HAS CAUSED AND WILL CAUSE

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- OUR COMMON TASK AND MORAL OBLIGATION SHOULD THEREFORE GO BEYOND MERELY USING SECONDARY RAW MATERIALS FOR CONCRETE
- THIS IMPLIES THAT OUR DESIGNS NEED TO REPAIR THE INTRINSIC DAMAGE THAT THEIR PRODUCTION CAUSE TO THE EARTH, AND TO US...

Re-cycling is an answer to the problem of waste and resources, not to other threats caused by the re-cycling process.

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Would it be possible to come up with products that try to cover these climate threats as well ?

Take Global Climate Issues as Design Parameter !

(recycled) products could

- ✓ **Absorb CO₂**
- ✓ **Generate or Store Energy**
- ✓ **Clean or Retain Water**
- ✓ **Clean Air**
- ✓ **Cool our Cities**
- ✓ **Last longer**
- ✓ **Improve health conditions**
- ✓ **Support Biodiversity**



Ten Innovative Concrete Products

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ISSUES AND CONTRIBUTE TO THE CLOSED
CYCLE OF RAW MATERIALS

MAKING Changes by Designing For a Better World



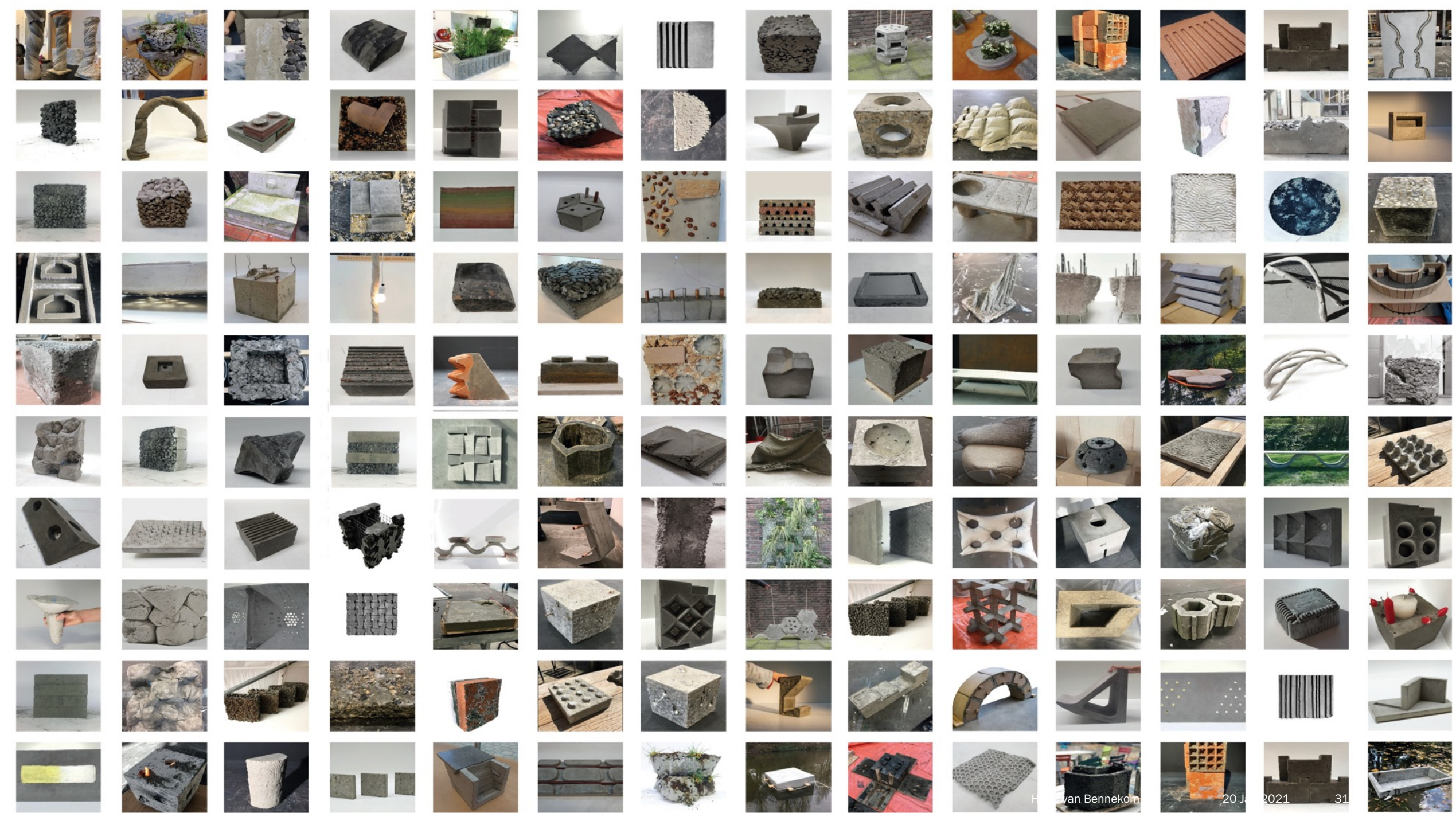










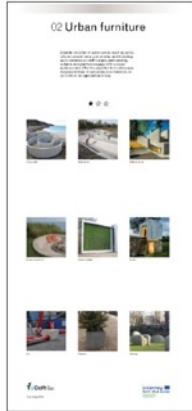


24 PROMISING PROPOSALS

THE OBVIOUS



URBAN FURNITURE



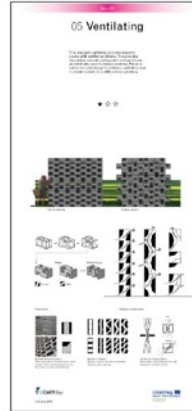
SAVING CDW



LIVING CONCRETE



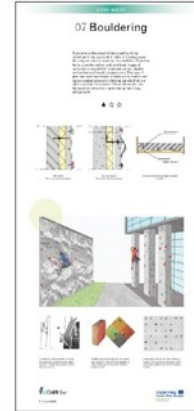
VENTILATING CONCRETE



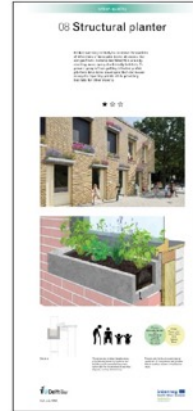
RETRO-FITTING



BOULDERING CONCRETE



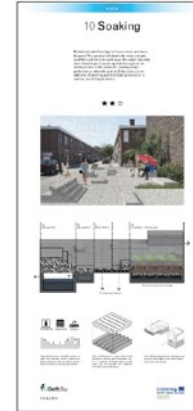
STRUCTURAL PLANTER



PREFAB INFRA



SOAKING CONCRETE



SOUND ABSORBING



SOUND RESONATING



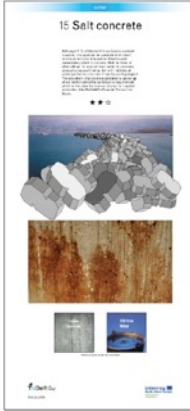
DOUBLE SIDED PAVER



REEF BLOCK



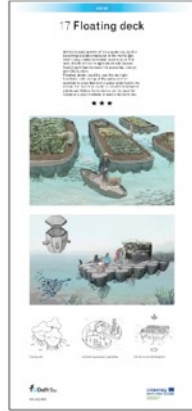
SALTY CONCRETE



FINE PAVING



FLOATING DECK



COOLING CONCRETE



ENERGY HARVESTING



STORING ENERGY



DUST ABSORBING



FLOATING CONCRETE



RAMMED CONCRETE



MYCELIUM CONCRETE

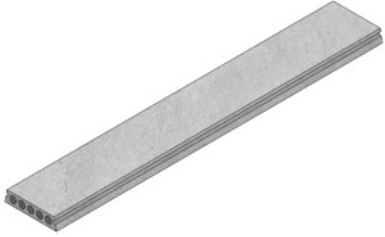






10 CONCRETE PRECAST PRODUCTS

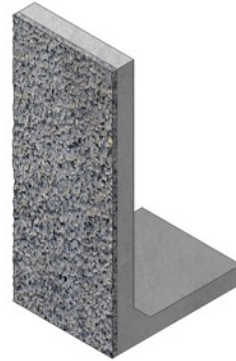
1. HOLLOW
CORE SLAB



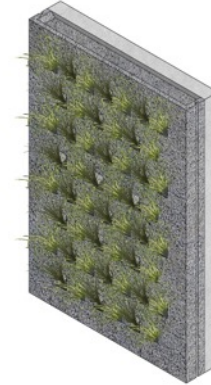
2. URBAN
ELEMENTS



3. ACOUSTIC
L-WALL



4. FAÇADE
CLADDING



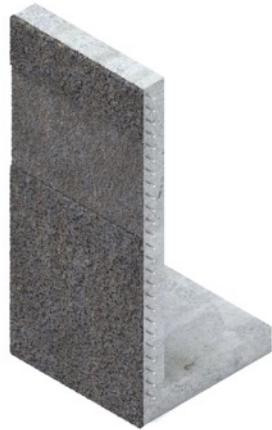
5. SALTY
CONCRETE



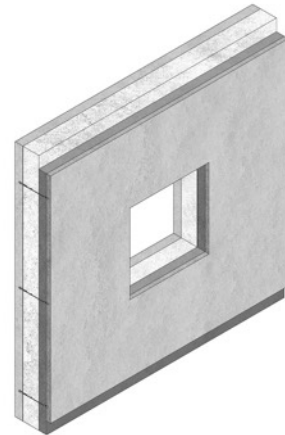
6. RAMMED
CONCRETE



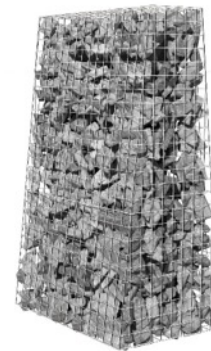
7. ENERGY SOUND
BARRIER



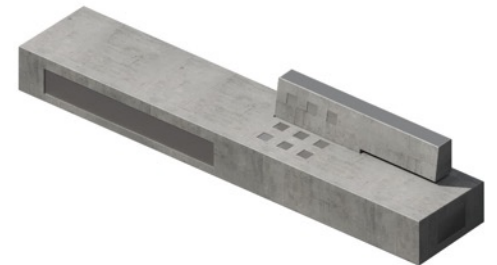
8. FOAM CONCRETE
INSULATED WALL



9. COOLING
WALL

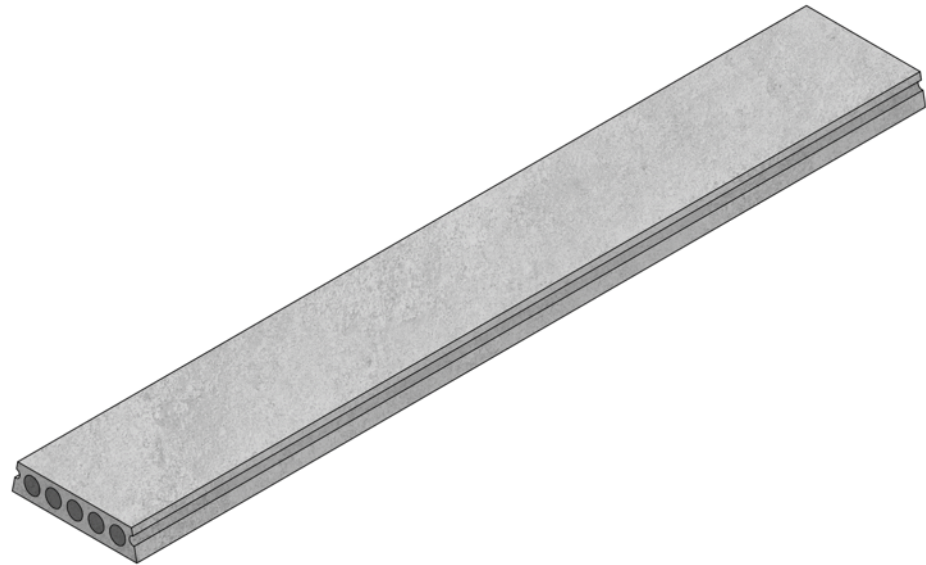


10. ENERGY
BENCH



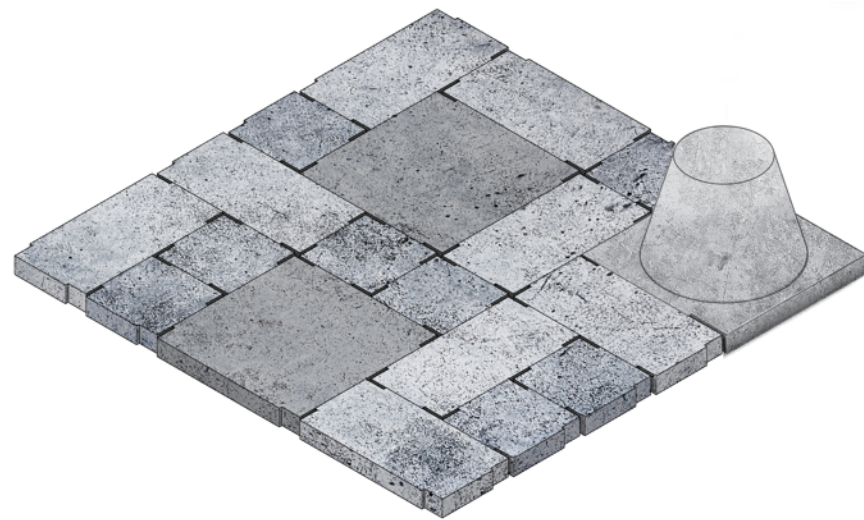
1. HOLLOW CORE FLOOR SLAB

HOLLOW CORE SLABS MAKEUP A LARGE PORTION OF THE PRECAST INDUSTRY, USING RECYCLED AGGREGATES FOR SUCH ELEMENT WILL INTRODUCES GREAT IMPACT IN THE MARKET

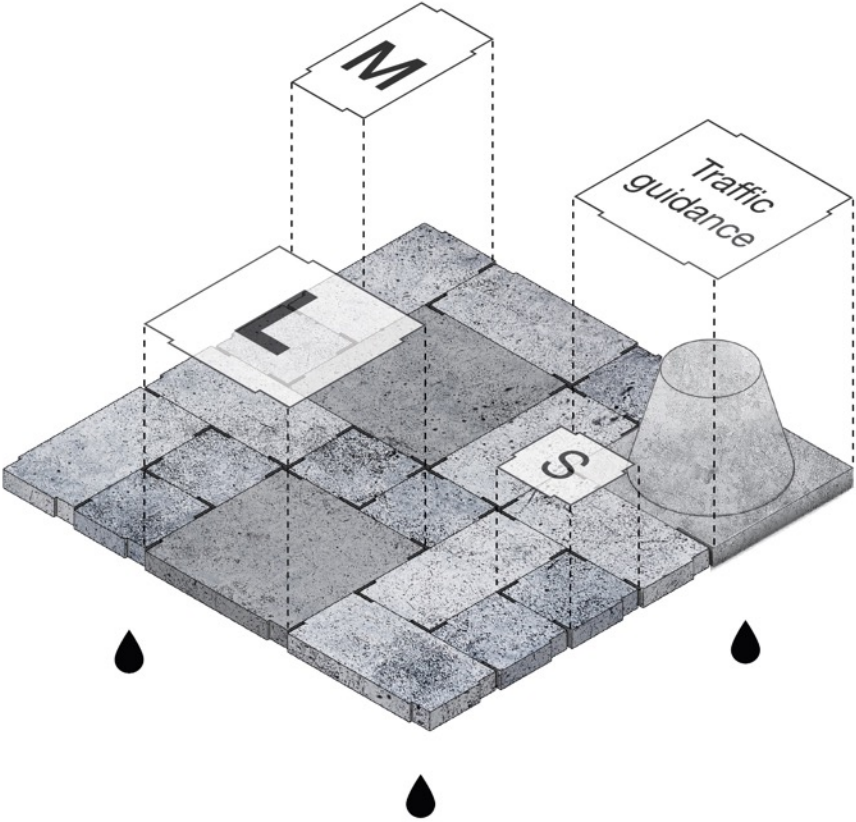


2. URBAN ELEMENTS

OPEN JOINTS IN EDGE OF PAVER SERVE AS A WATER DRAINAGE SYSTEM DURING HEAVY DOWNPOUR

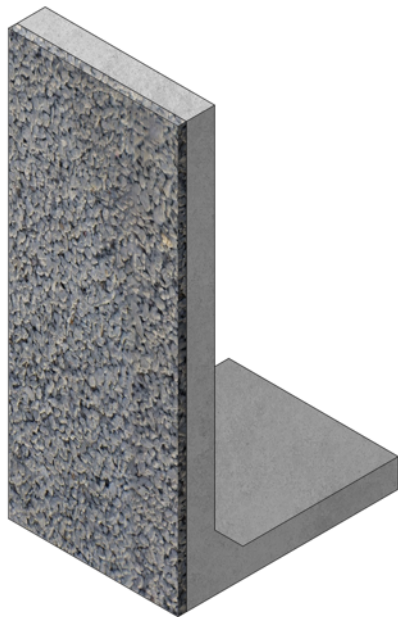


2. URBAN ELEMENTS



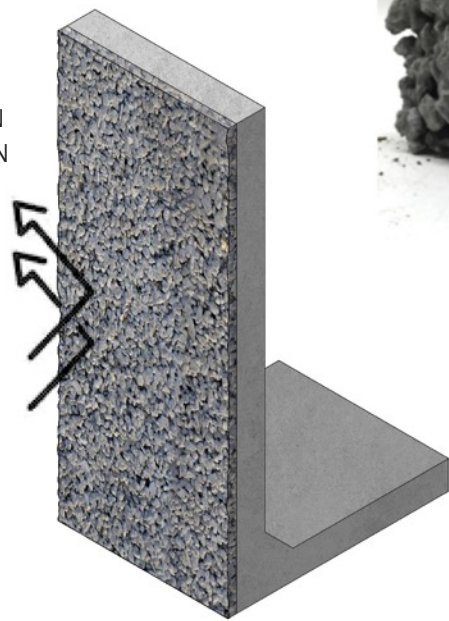
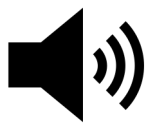
3. SOUND ABSORBING L-WALL

L-WALL ARE TYPICALLY ONLY USED FOR RETAINING PURPOSES, THIS PRODUCT SEEKS TO ADD ANOTHER FUNCTION OF SOUND ABSORBING IN THE FORM OF POROUSE CONCRETE



3. SOUND ABSORBING L-WALL

SOUND
ABSORPTION
& REFLECTION



POROUS
CONCRETE
FINISH



4. FAÇADE CLADDING

COMBINING FEATURES SUCH AS IMPROVING BIODIVERSITY, REDUCTION OF AIR AND ACOUSTIC POLLUTION AND PROMOTION OF WELL-BEING MAKE THIS A MULTIFUNCTIONAL PRODUCT



4. FAÇADE CLADDING

WATER
RETAINING

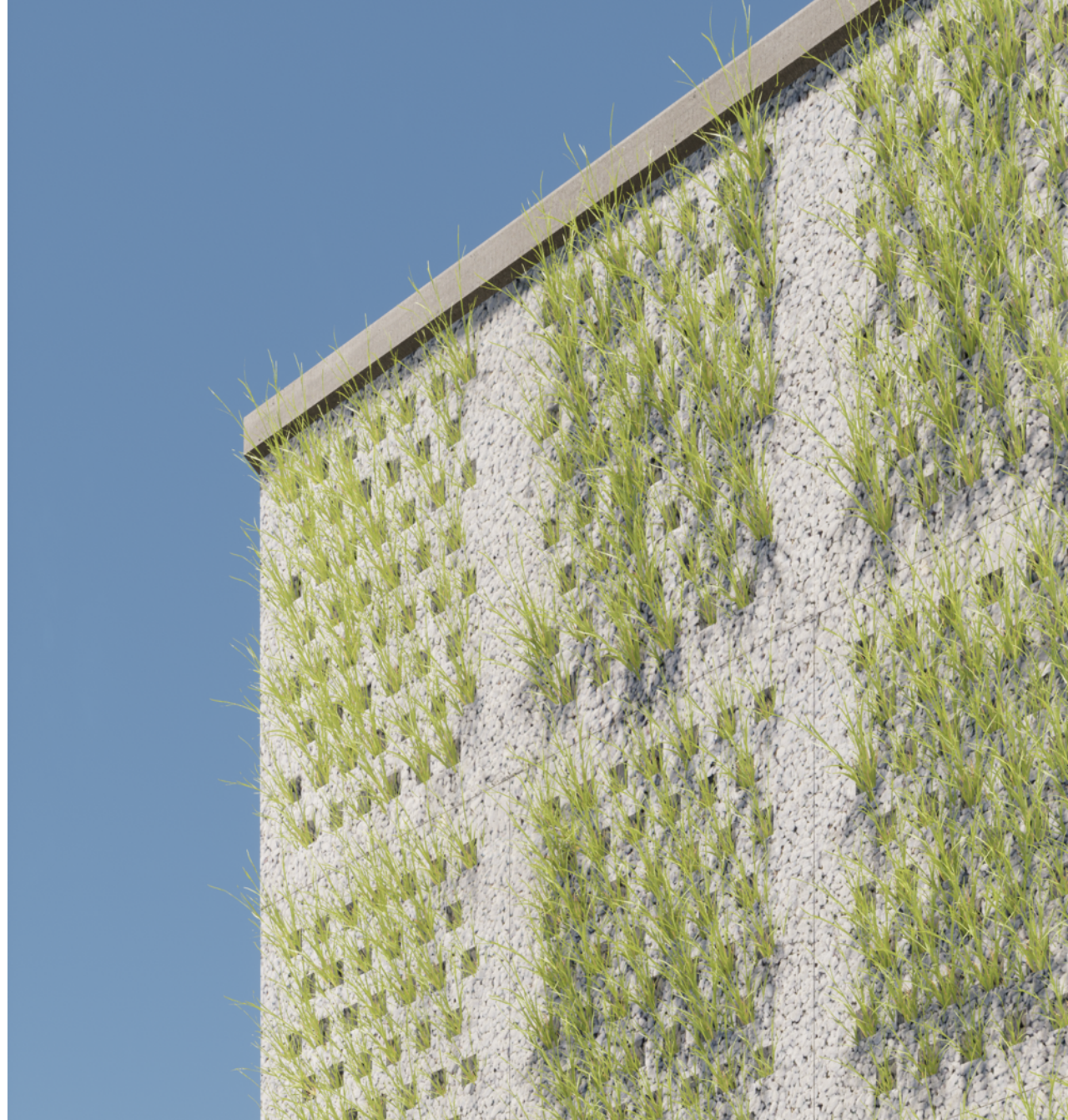
DUST
ABSORBING



SOUND
ABSORBING

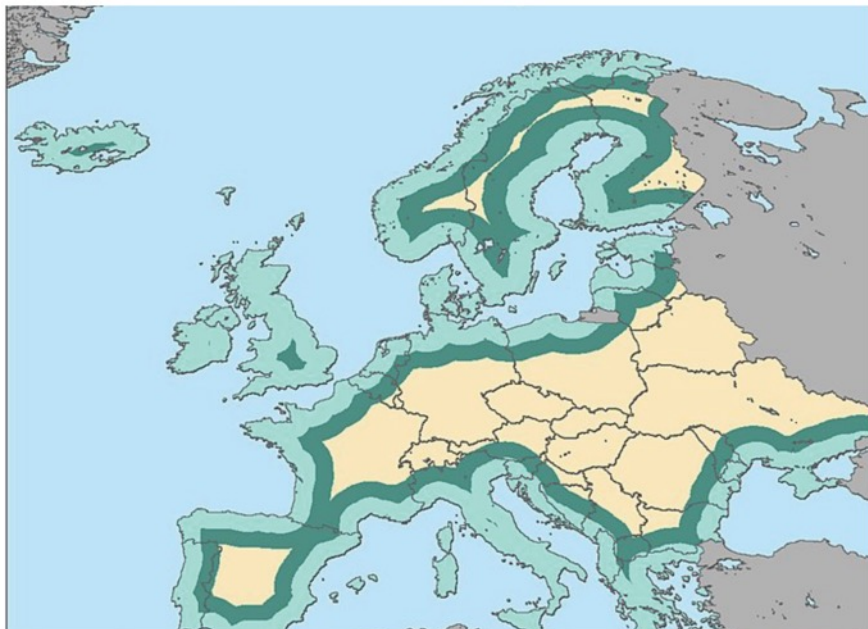
INCREASE
BIODIVERSITY


COOLING




5. SALTY CONCRETE

AS THE SECOND LARGEST CONSUMER OF WATER, THE CONCRETE INDUSTRY CAN REDUCE A LOT OF FRESH WATER USAGE IF SEA WATER CAN BE USED A SUBSTITUTE



 < 100km from coast ca. 35% of total EU area

 < 200km from coast ca. 60% of total EU area



5. SALTY CONCRETE



6. RAMMED CONCRETE

UTILISING FINE RECYCLED AGGREGATES THAT ARE OTHERWISE HARD TO USE CONCRETE MIX BY RAMMING THEM INTO COMPACT BUILDING BLOCKS



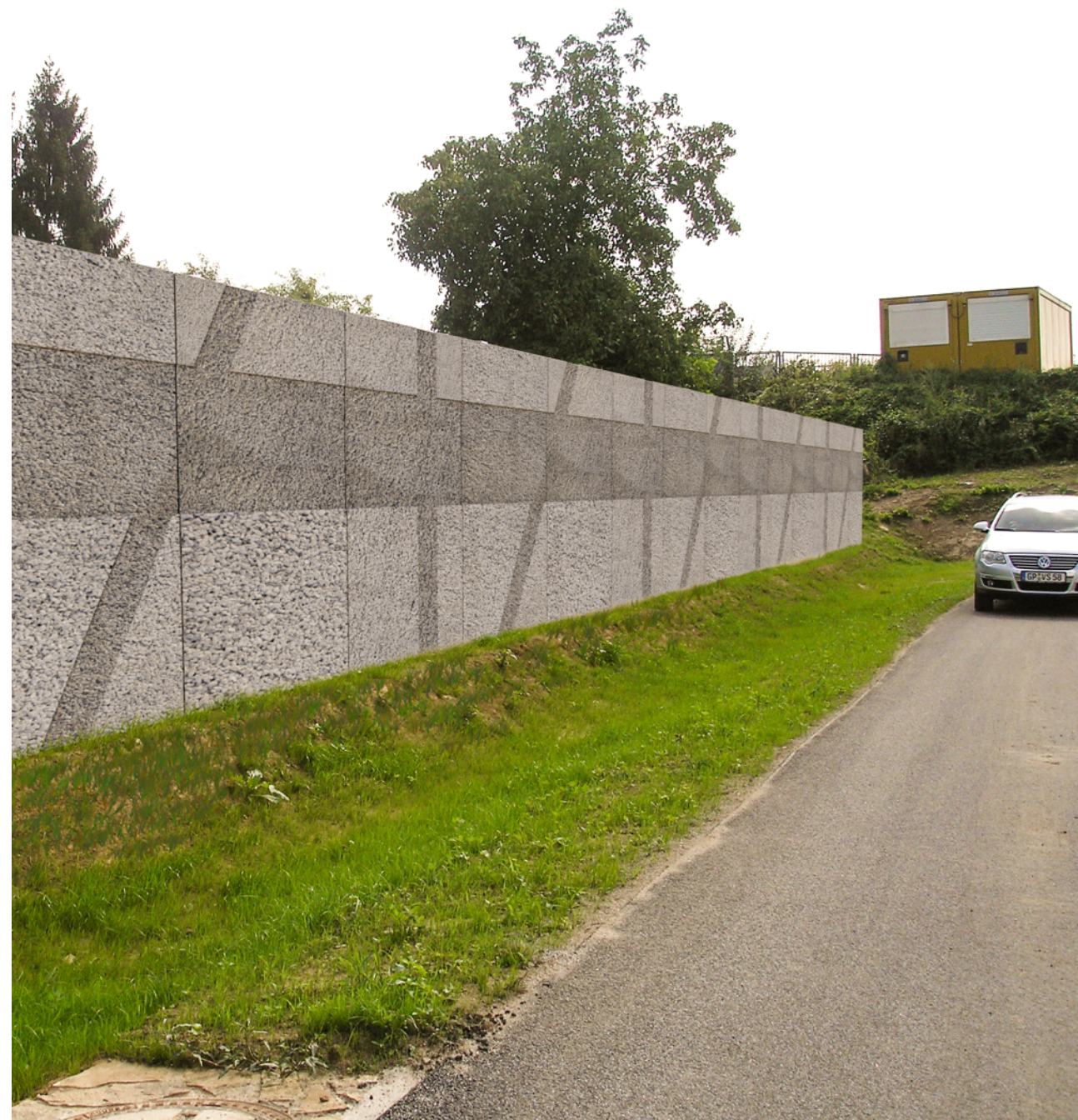
6. RAMMED CONCRETE

COMPRESSED FINE RECYCLED
AGGREGATES AND PIGMENTS



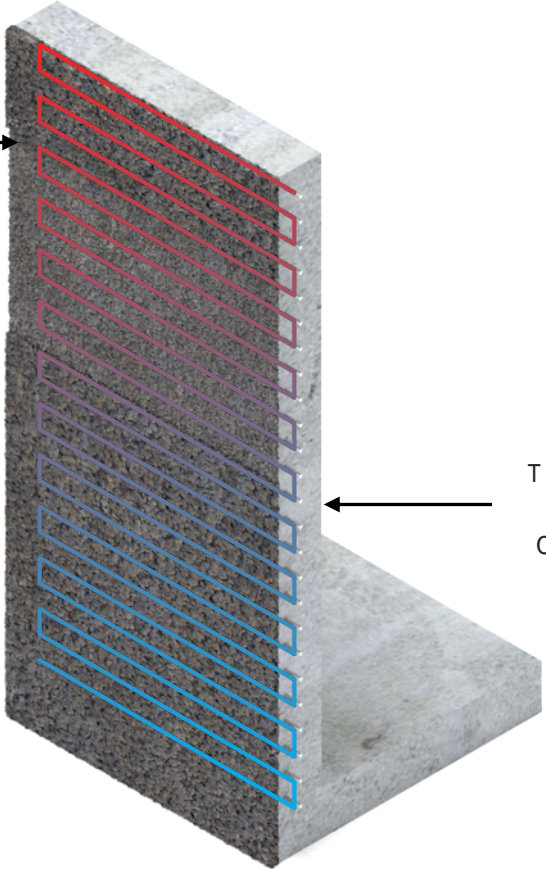
7. ENERGY SOUND BARRIER

ENERGY SOUND BARRIER USES ITS MASS TO SHIELD OFF NOISE TOGETHER WITH ABSORBING SOLAR ENERGY



7. ENERGY SOUND BARRIER

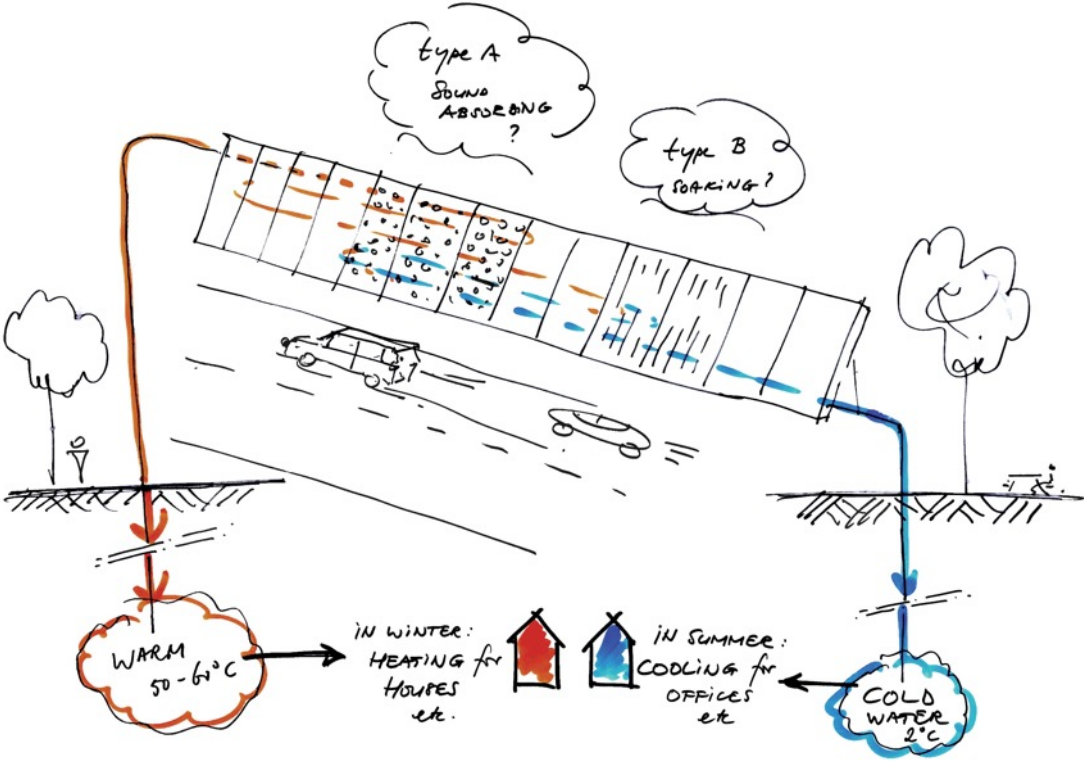
CONCRETE
MASS AND
ROUGH FINISH
ABSORB
AMBIENT
NOISE



PIPES
TRANSFERS
HEAT OR
COLD TO A
NEARBY
STORAGE

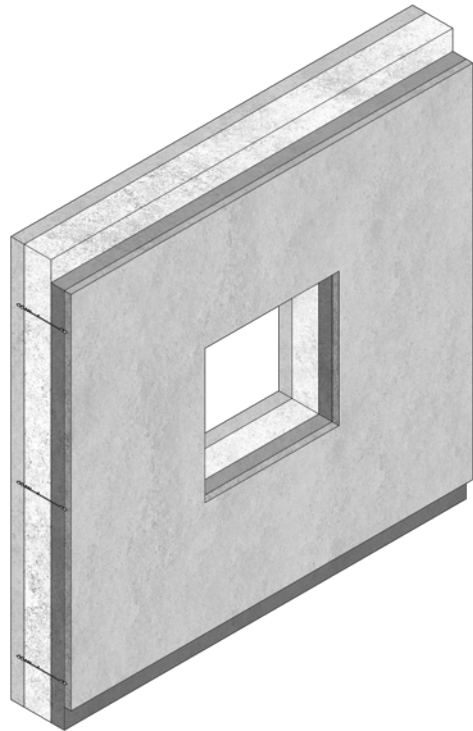


7. ENERGY SOUND BARRIER



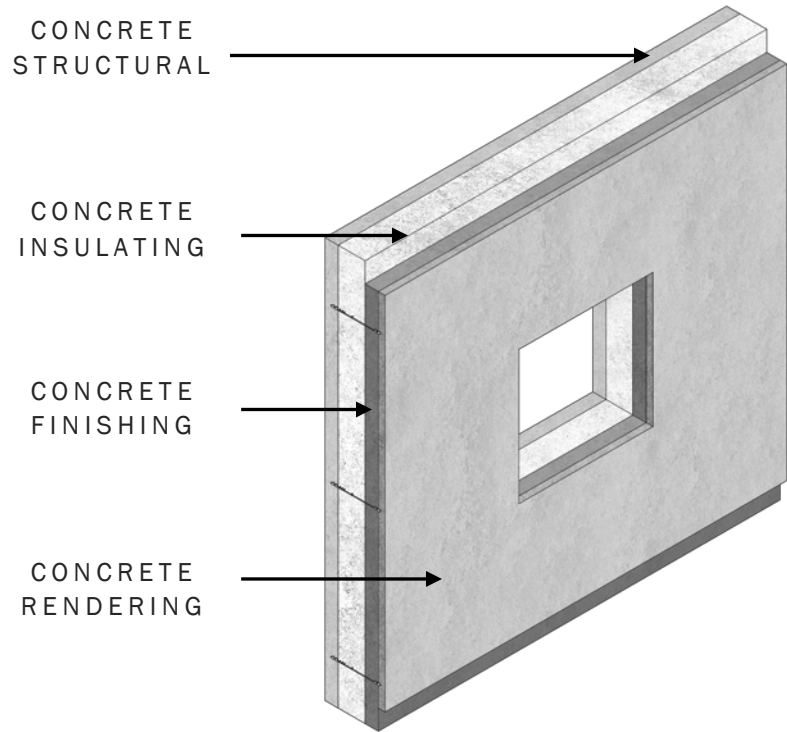
8. FOAM CONCRETE INSULATED WALL

CREATING A TOTAL PREFAB WALL ELEMENT WITH THE MINIMAL INTRODUCTION OF SYNTHETIC INSULATIONS



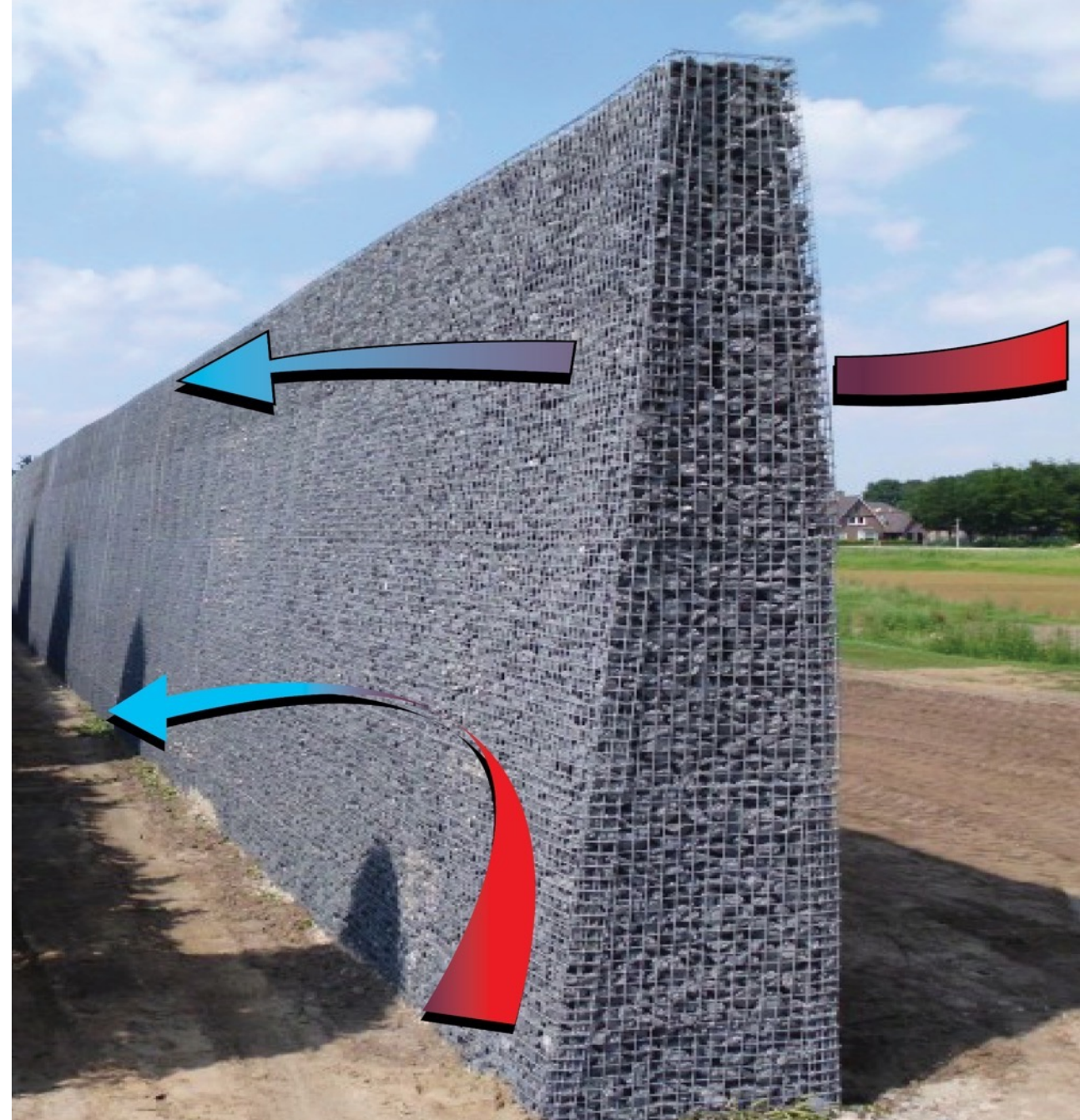
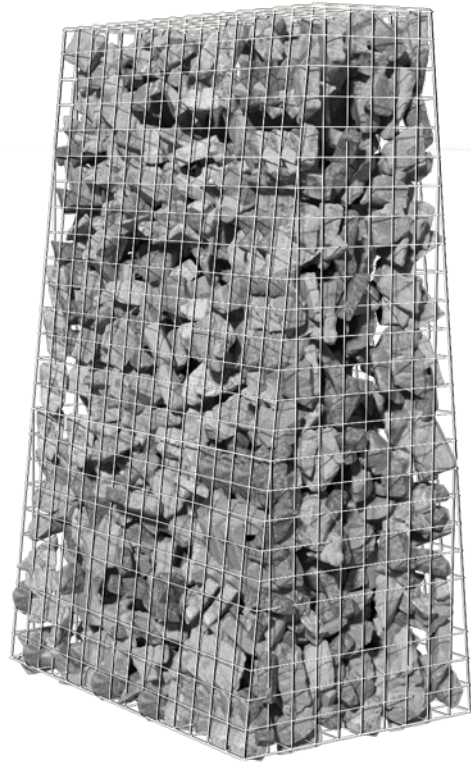
8. FOAM CONCRETE INSULATED WALL

PREFAB
COMPLETE
WALL ELEMENT

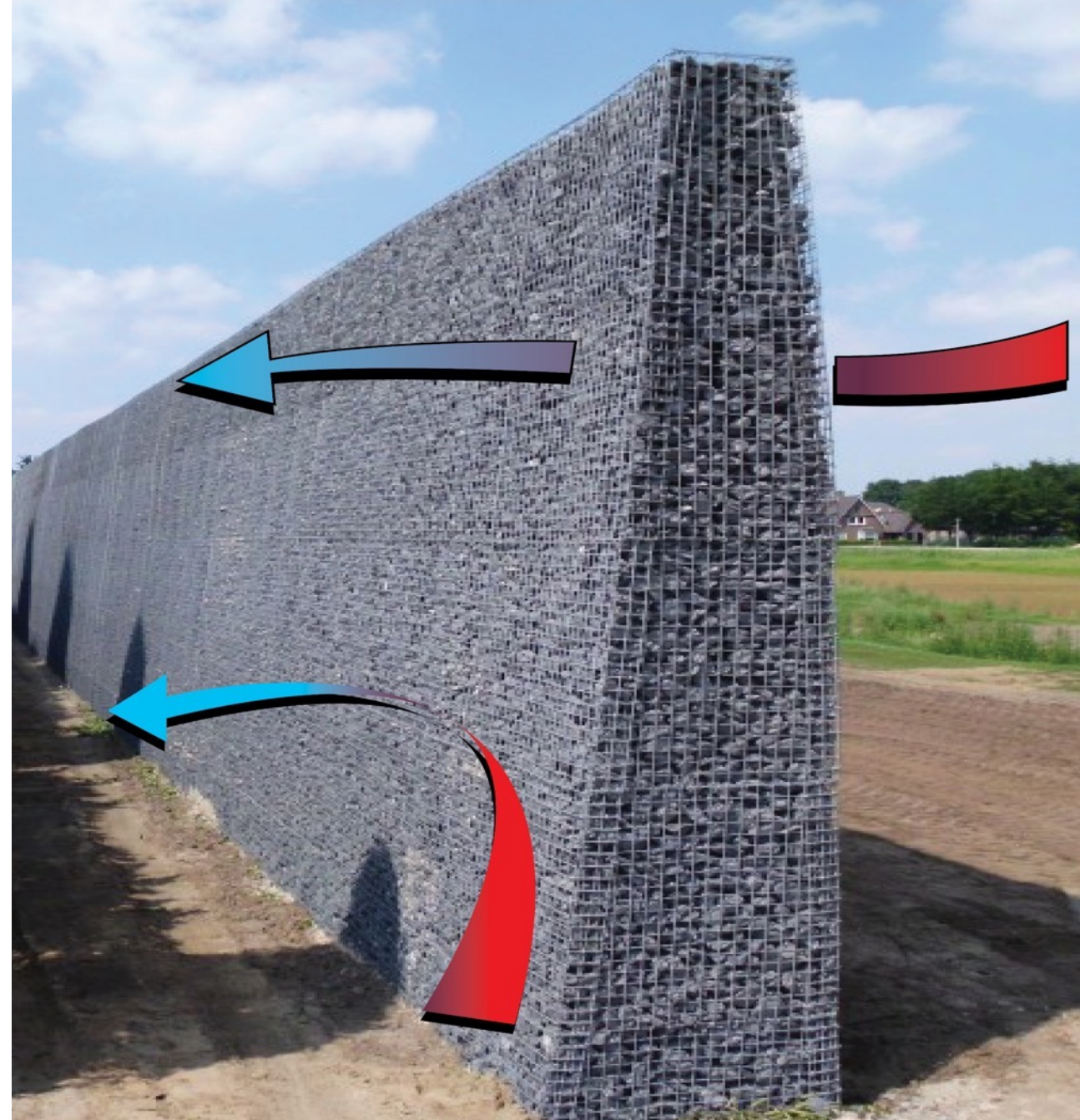
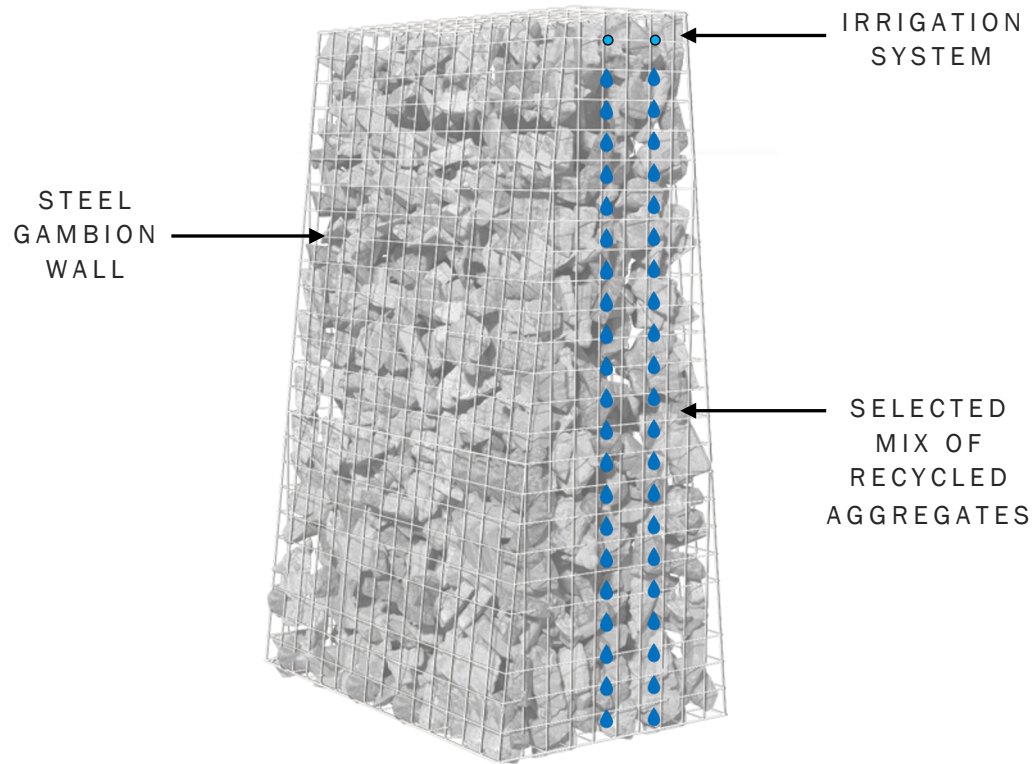


9. COOLING WALL

COOLING AMBIENT AIR WITH THE HELP OF A
INTEGRATE IRRIGATION SYSTEM



9. COOLING WALL

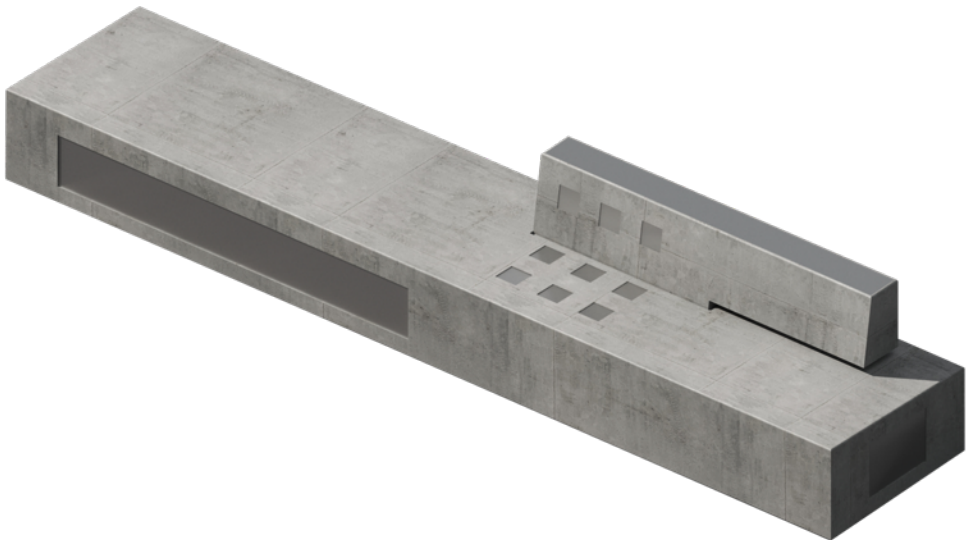


TEST MOCKUP COOLING WALL TRADECOWALL

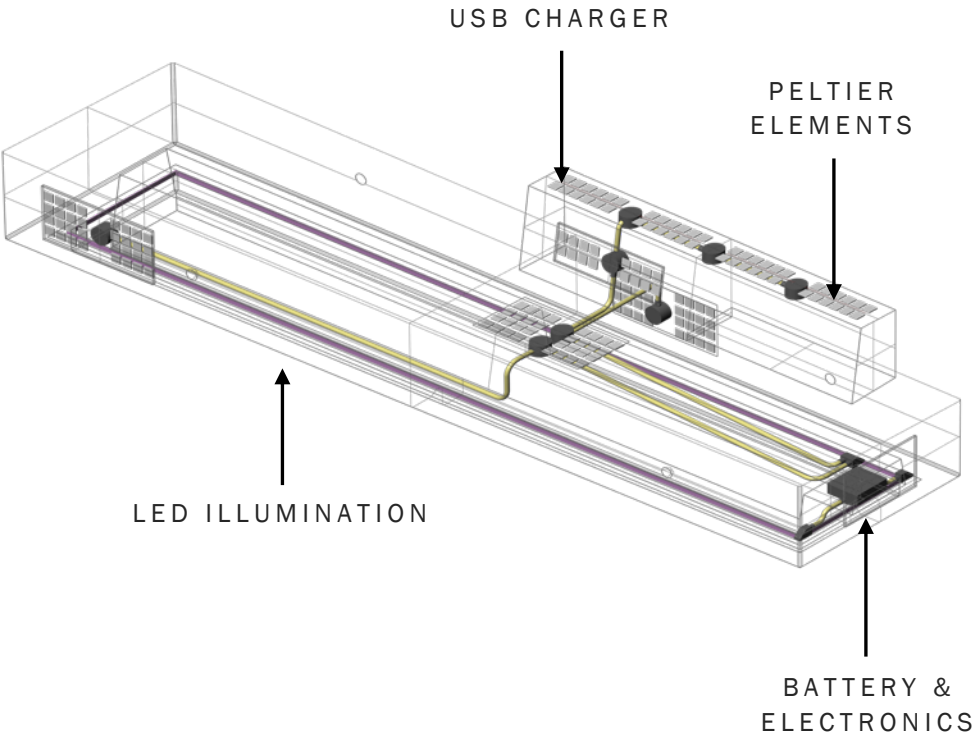


10. ENERGY BENCH

TEMPERATURE DIFFERENCE BETWEEN AMBIENT AIR AND CONCRETE CREATES A CURRENT TO POWER THE LED STRIP



10. ENERGY BENCH



















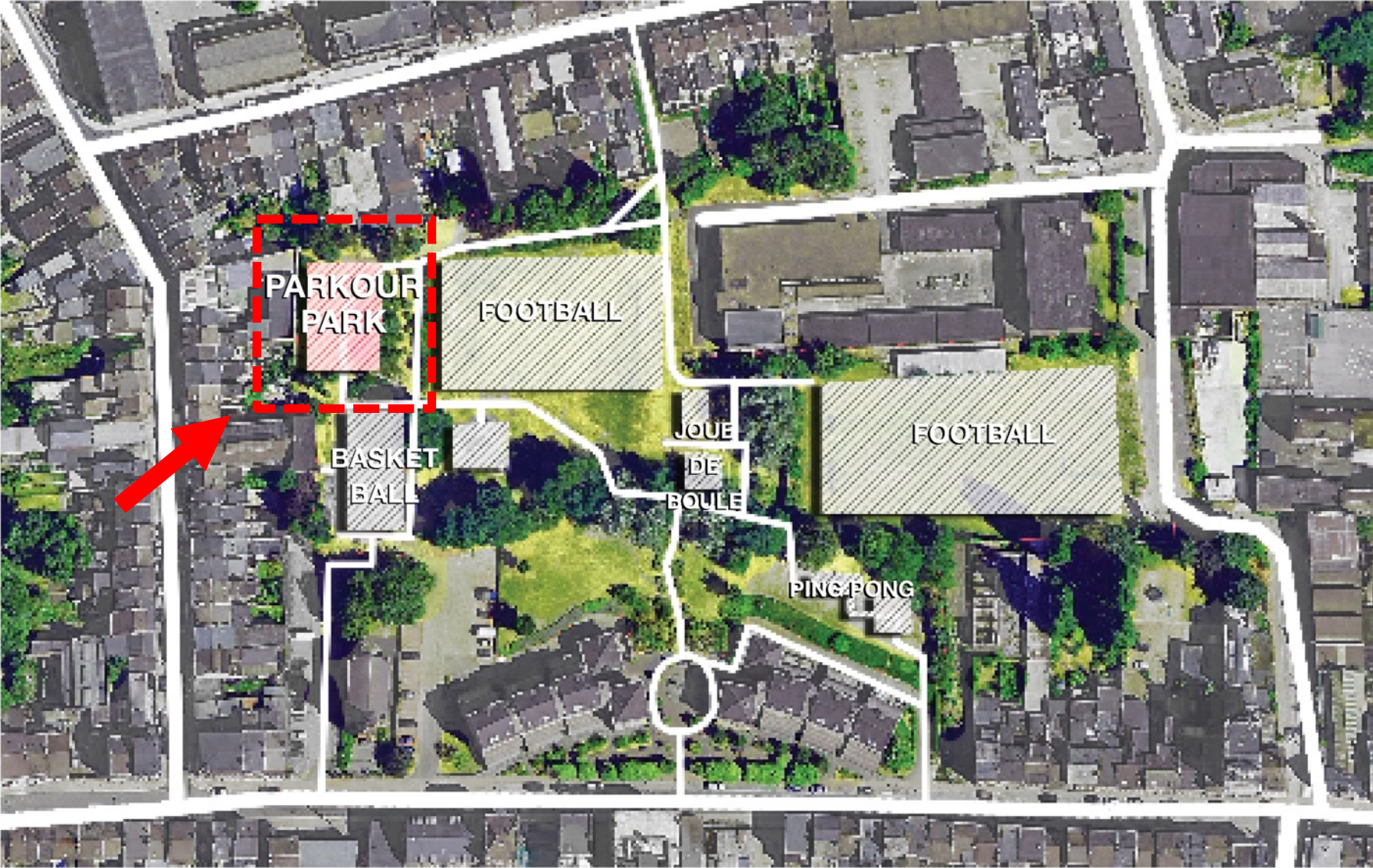
3 Pilot Projects

PARKOUR PARK SERAING BELGIUM

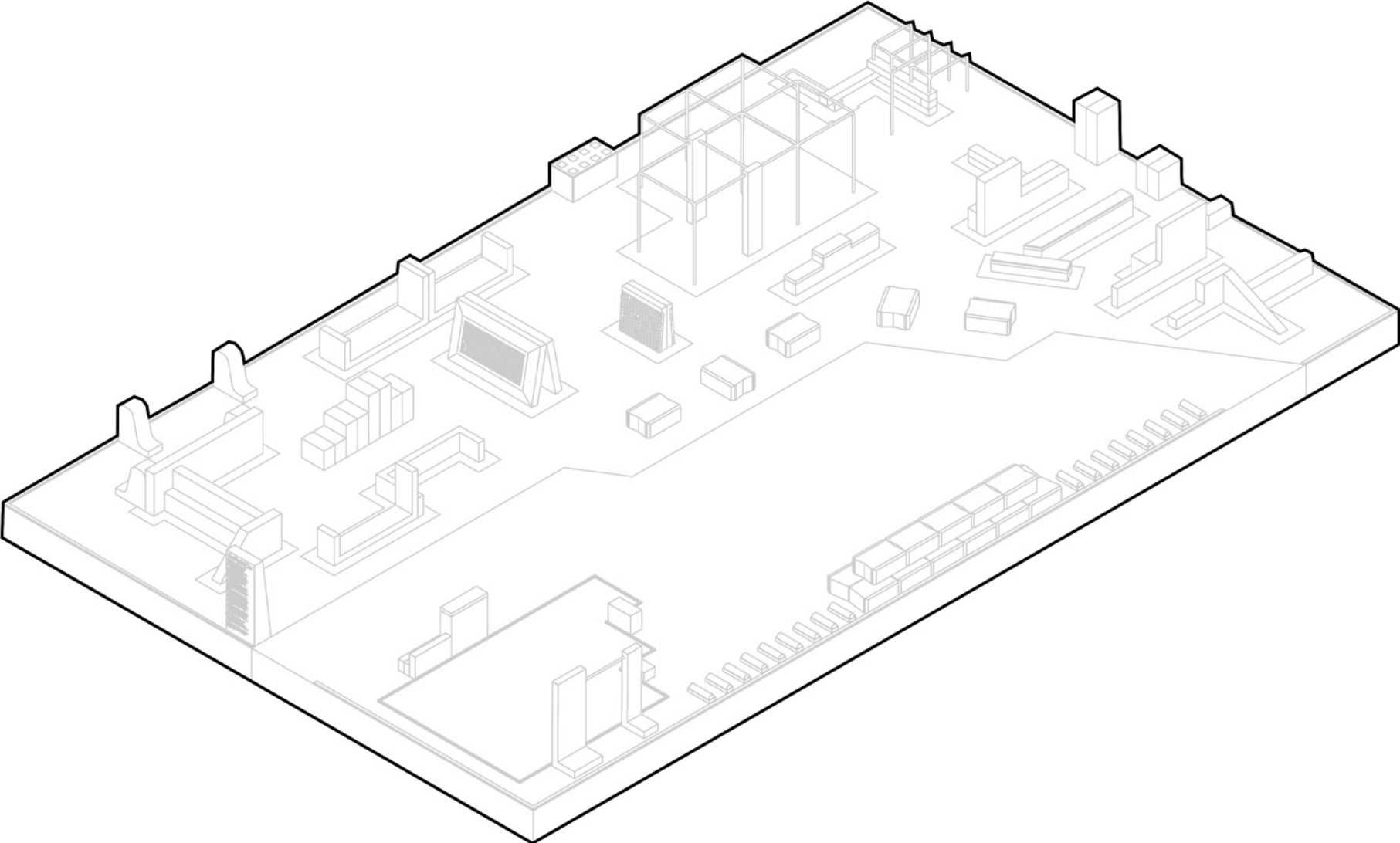
CAMPUS PAVILION PIRMASENS GERMANY

L – WALL THIONVILLE FRANCE

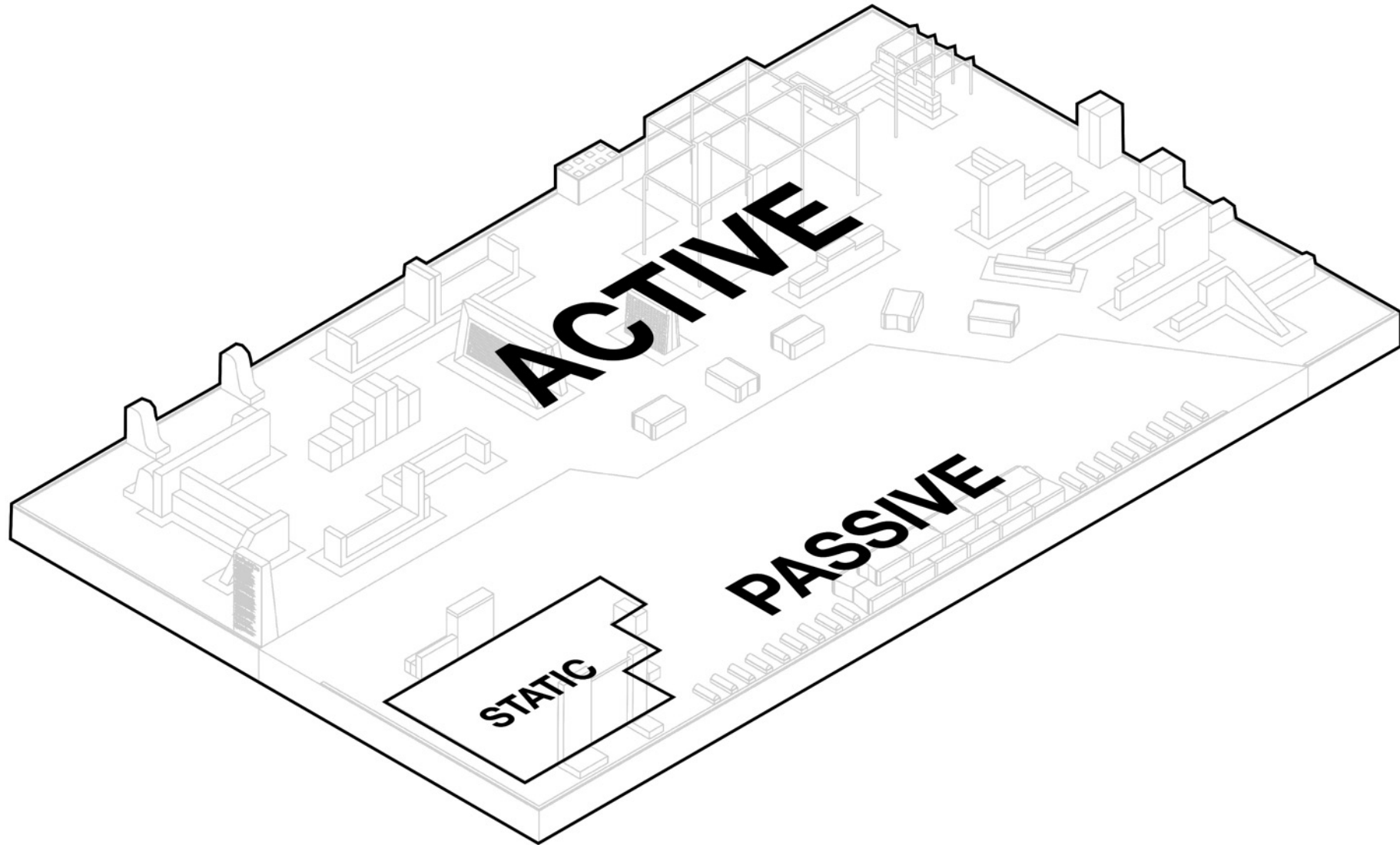
PARKOUR PARK SERAING BELGIUM



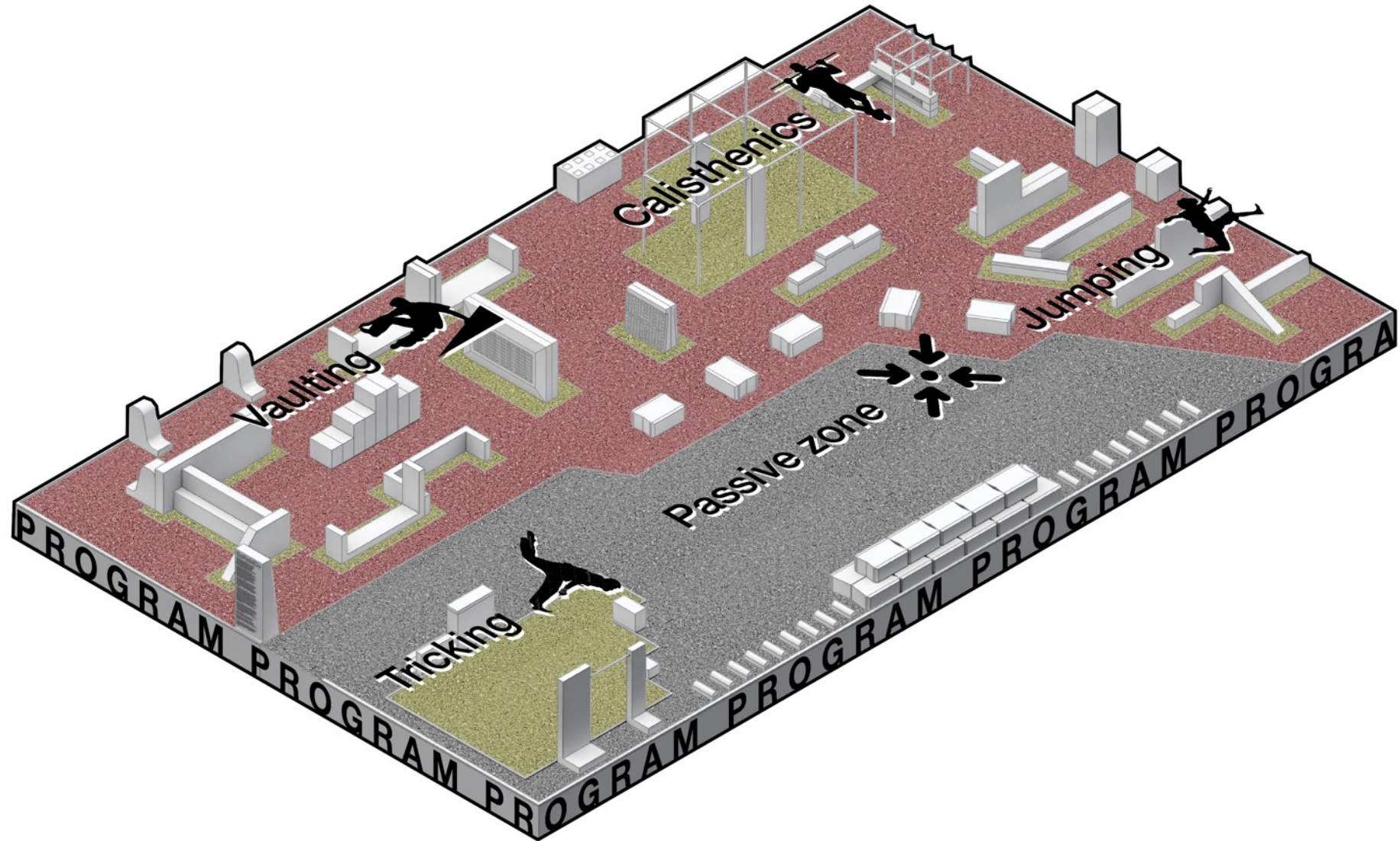
PREFAB AND CUSTOM ELEMENTS ARE USED TO CREATE A PLAYFUL COMPOSITION FOR LOCAL PARKOUR PRACTITIONERS



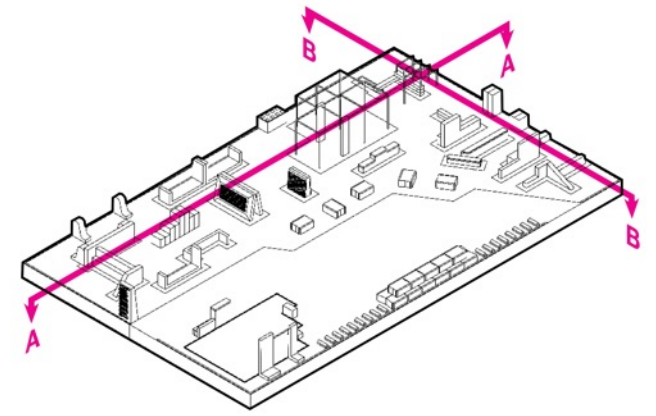
THE DESIGN DIVIDES THE AREA OF THE PARK IN
AND ACTIVE AND PASSIVE ZONE



ALL AREAS CAN BE USED TO PRACTICE INDIVIDUAL DISCIPLINES OF THE SPORT



SECTIONS

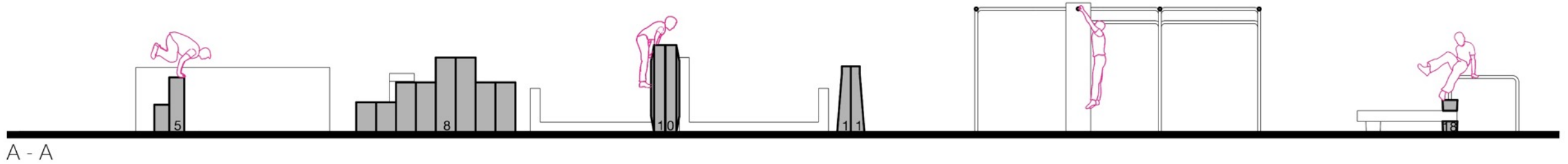


Kong Vault

Wall climb

Swinging

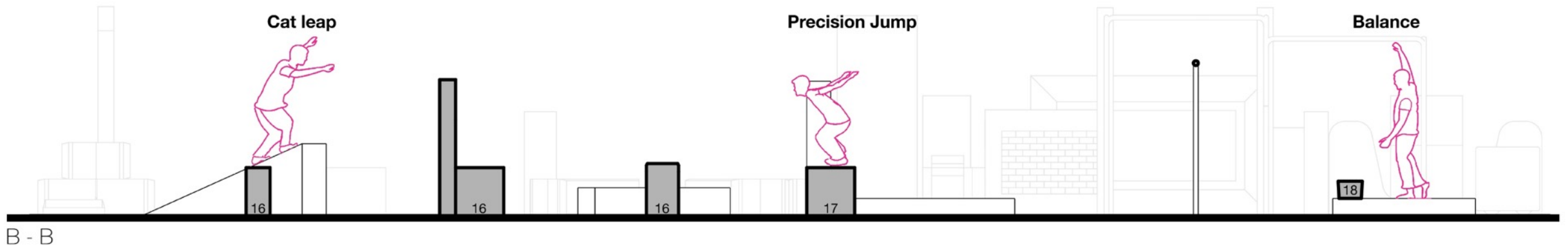
Vault



Cat leap

Precision Jump

Balance



SeRaMCo

The construction sector is the most resource intensive industrial sector in the EU. It uses around 50% of the available primary raw materials, hence exhausting the natural resources, degrading environment and generating high costs to the business operators.

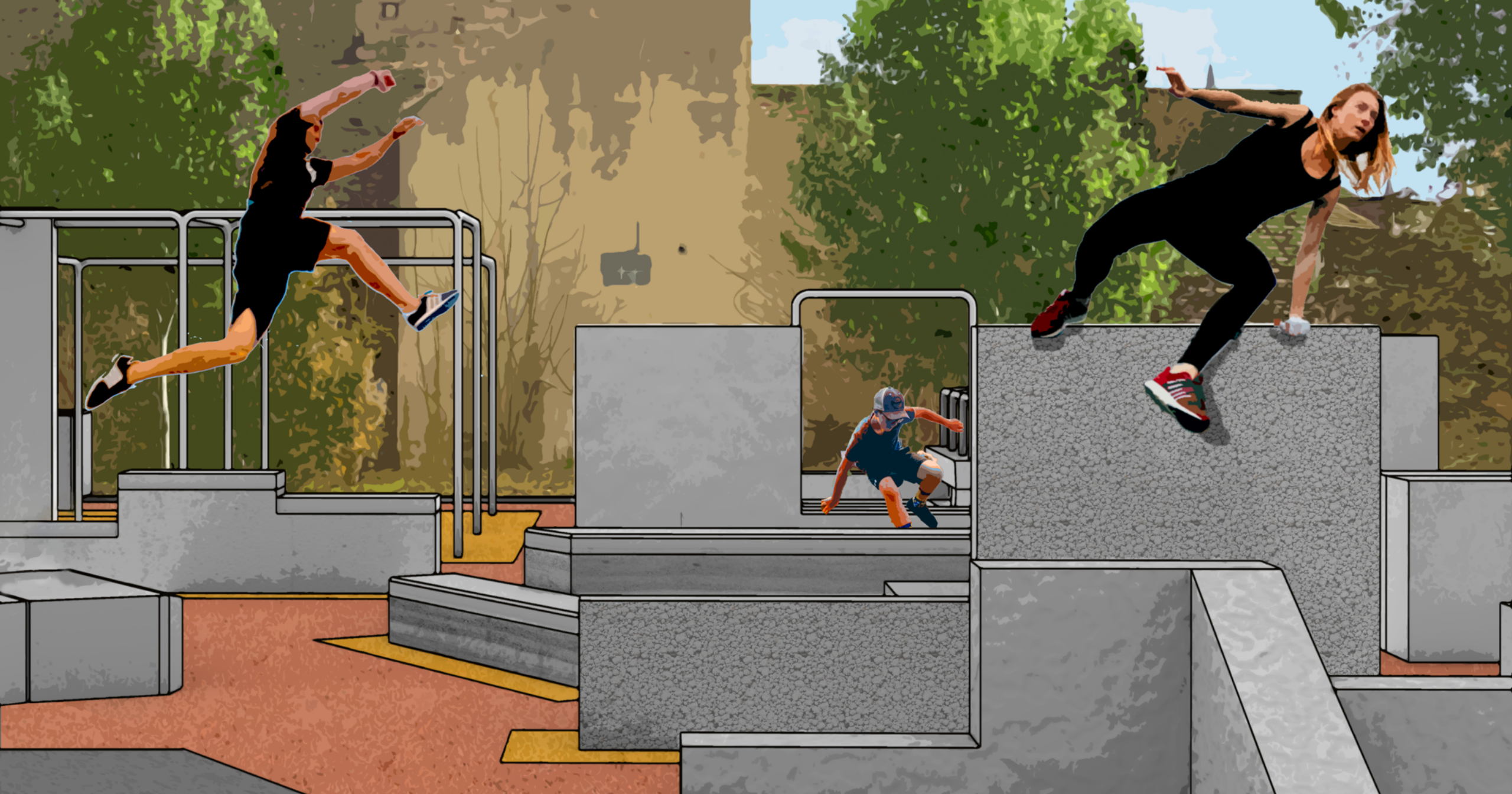
Although there is potential for the use of secondary raw materials from construction and demolition waste (CDW), this is not becoming mainstream in Europe. At the same time being, the sector uses only a small amount of recycled construction and demolition waste (CDW), although CDW represents the largest waste stream in the EU, accounting for 1/3 of the overall European waste.

Against this background, this report looks at the situation in the whole of Europe and North-Western Europe (NWE), namely Germany, France, Belgium and the Netherlands are leading the way in recycling CDW. Depending on the country, these rates range from 10% to 30%.

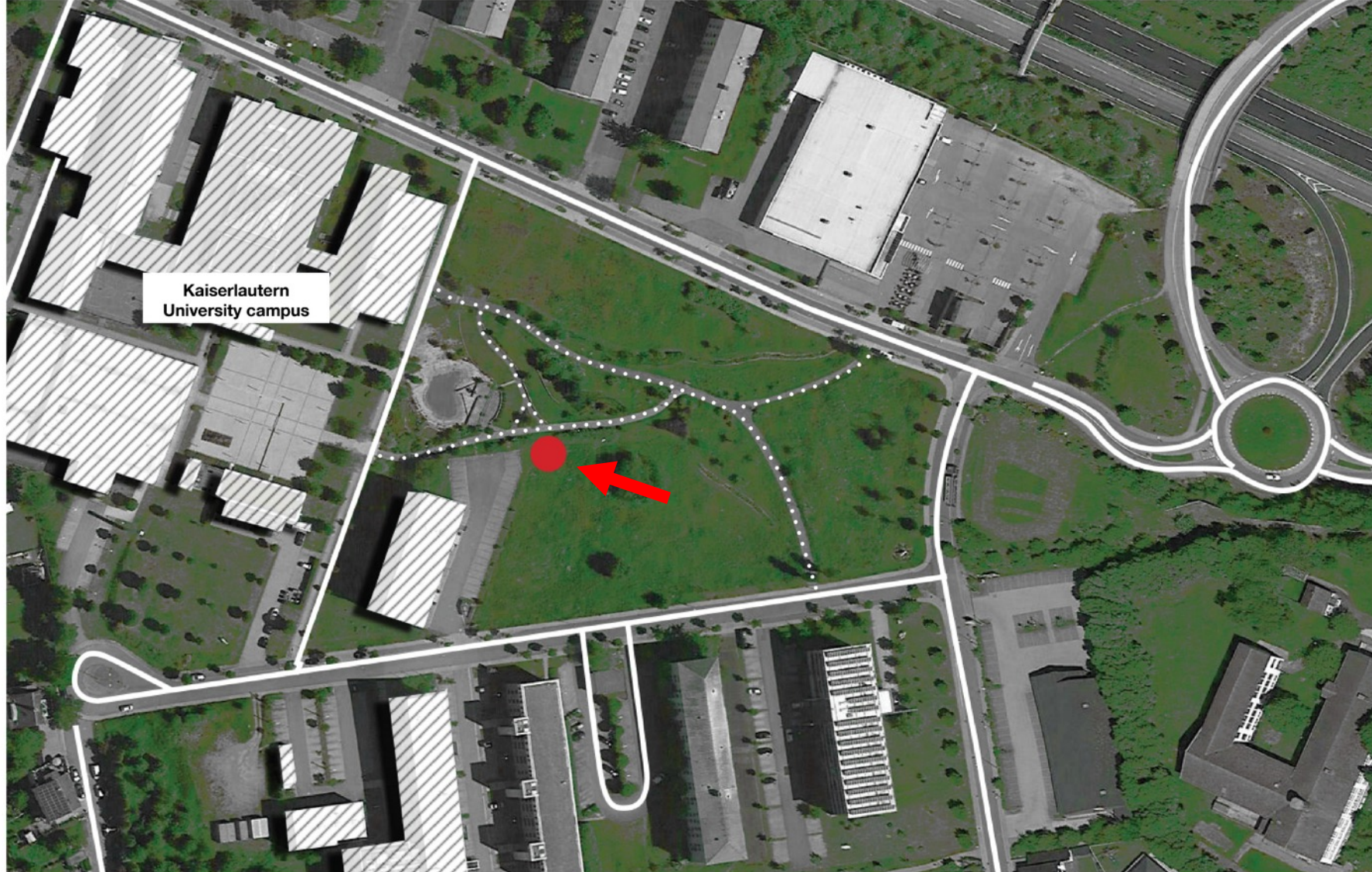
However, although waste recycling rates in NWE are impressive, business operators from the construction sector are still facing challenges in placing their recycled products on the market. This is primarily due to the fact that there is still no niche market for concrete products made from recycled materials. The lack of a niche market is accompanied by the lack of a clear-cut legislative framework in certain NWE states and inability to make precise cost estimations reflecting both social and economic costs of the production.







CAMPUS PAVILION PIRMASENS GERMANY

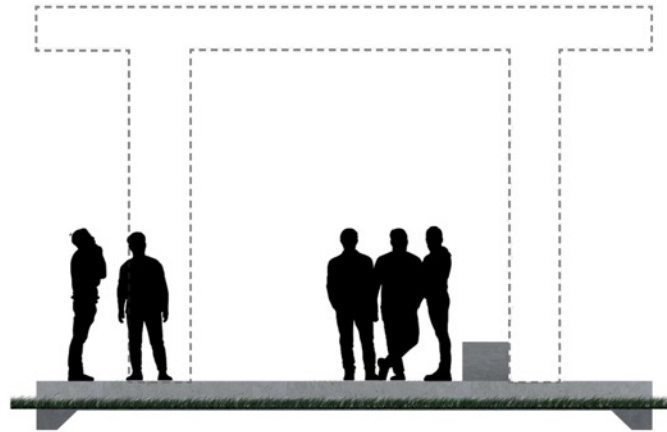


Kaiserlautern
University campus

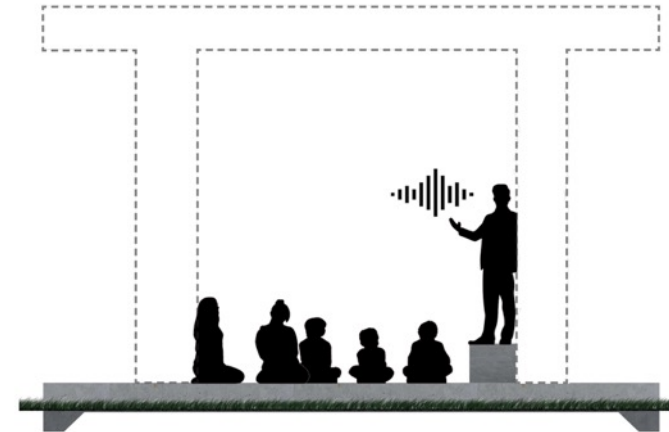


CREATING SPACE FOR...

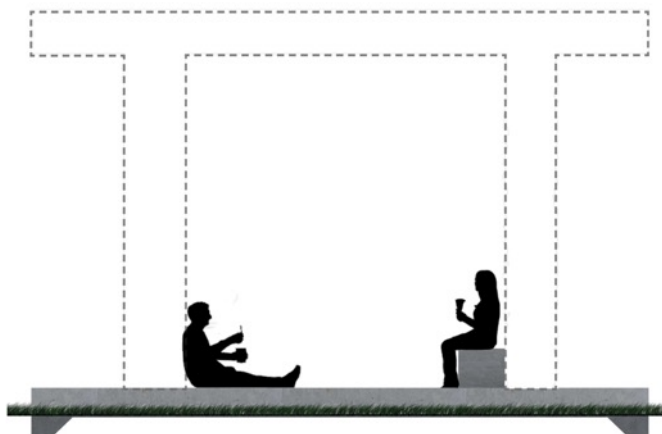
GATHERING



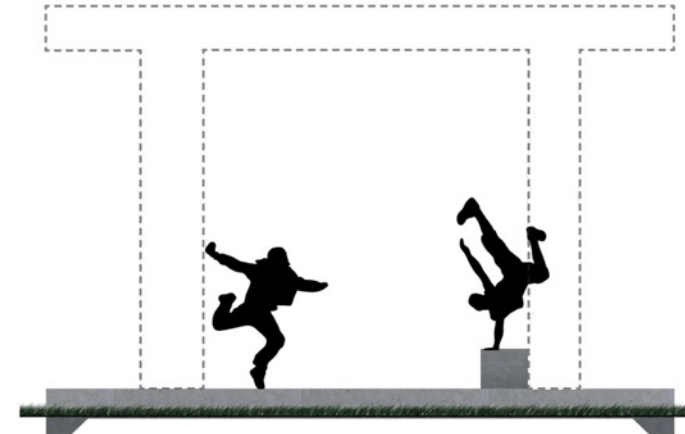
PRESENTING



DISCUSSING

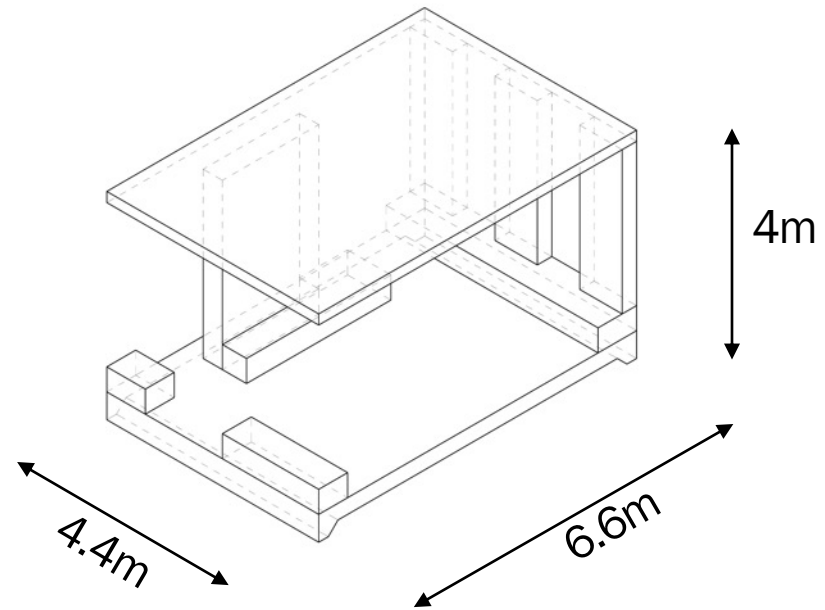


PERFORMANCE



CAMPUS PAVILION

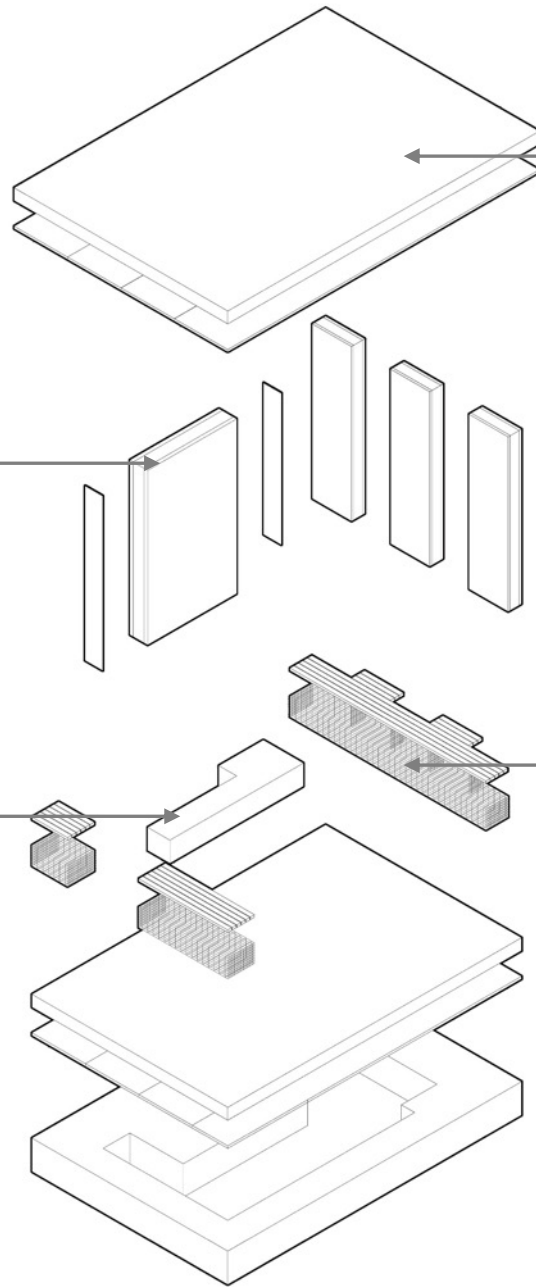
PIRMASENS GERMANY



**EXPOSED AGGREGATE
CONCRETE**



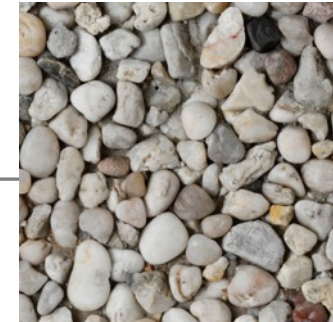
RAMMED CONCRETE



RAW CONCRETE FINISH



**EXPOSED RECYCLED
AGGREGATES**



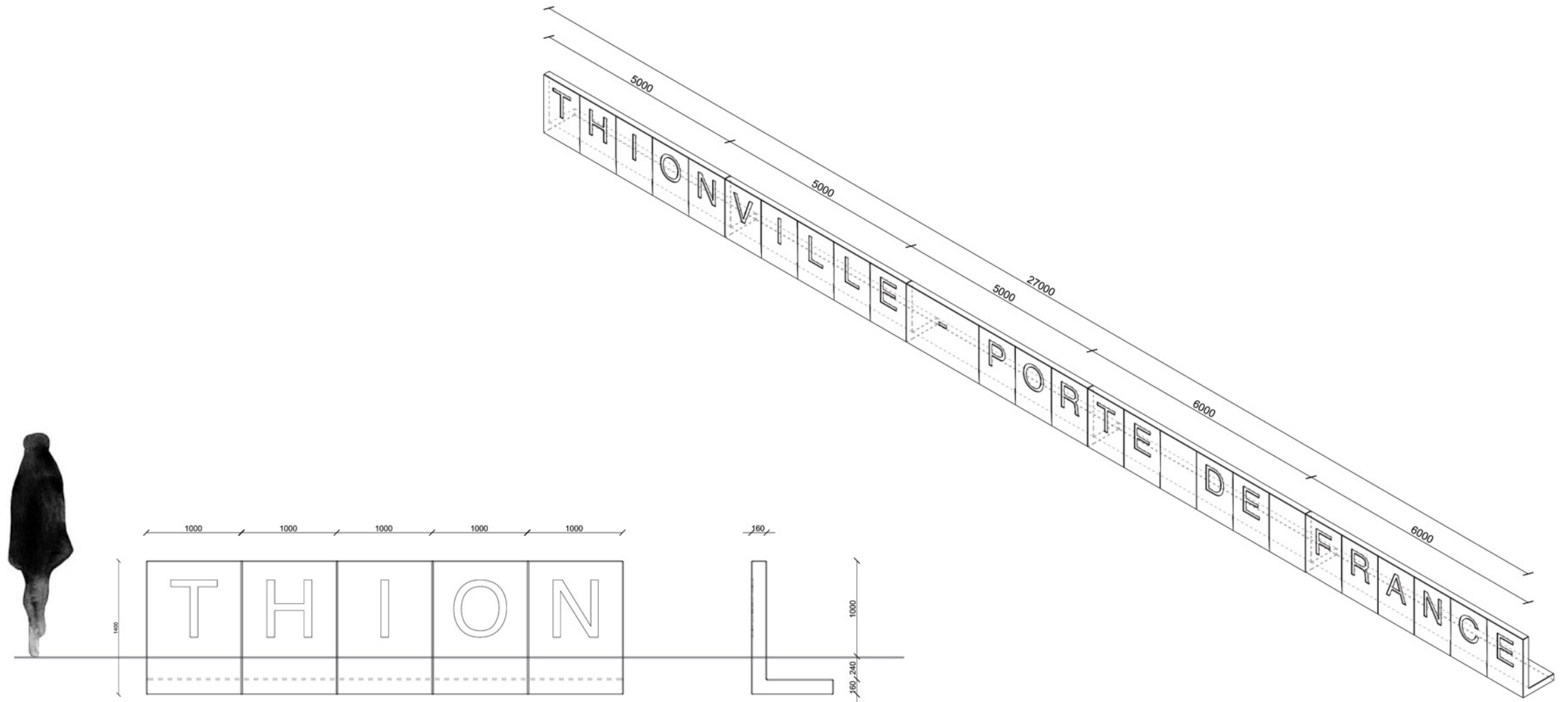




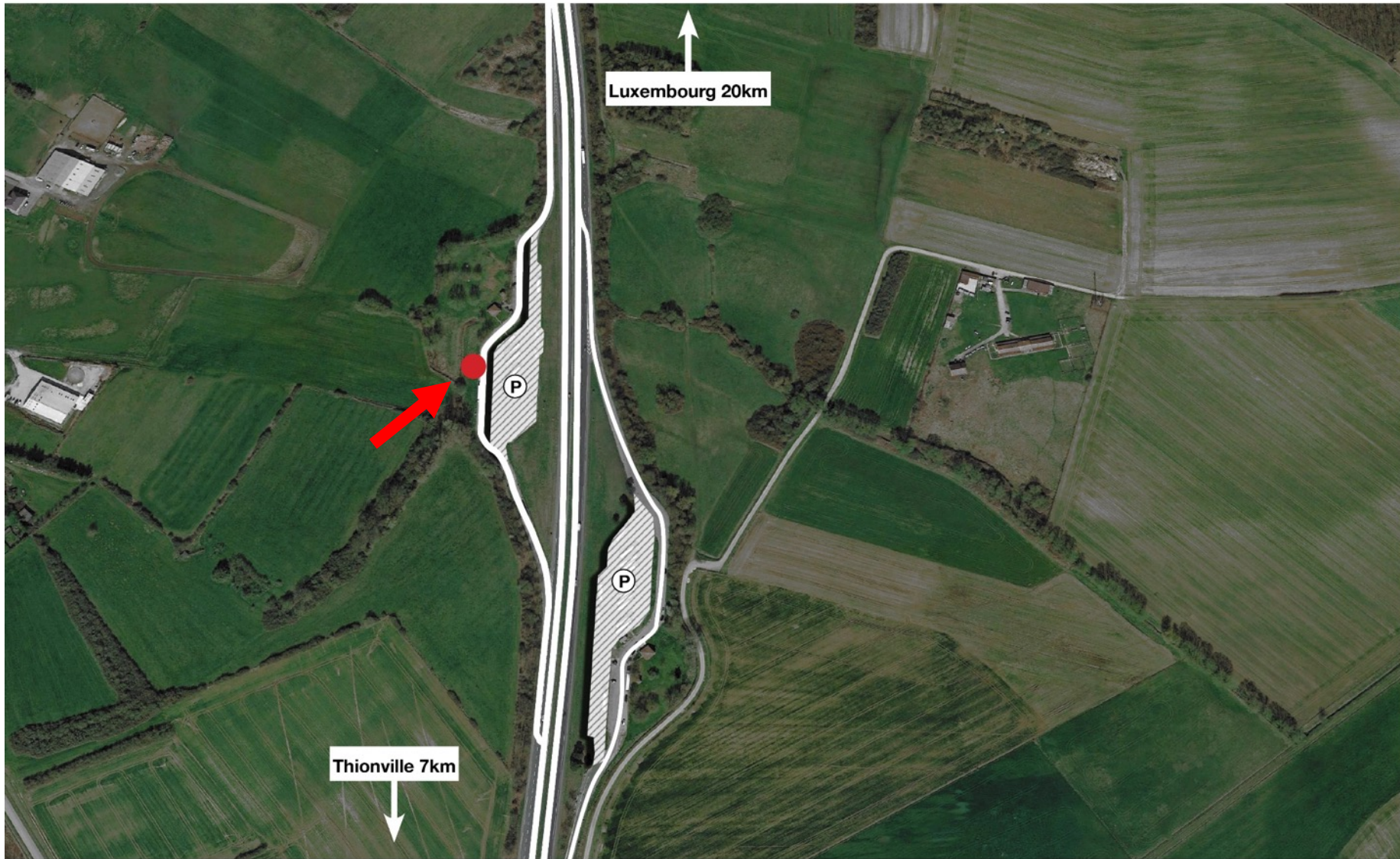




L - WALL THIONVILLE FRANCE



LOCATION





THIONVILLE - PORTE DE FRANCE







THANK YOU