

ARCHITECTURAL ENGINEERING GRADUATION STUDIO  
P5 · TWANA GUL



**THE REFUGEE CITY**  
REDEFINITION OF THE REFUGEE CAMPS IN KURDISTAN

IN CORPORATION WITH



## **Brief Introduction**

Background

Research Question

## **Field and Desk Research**

Video: The Journey (9:00 min)

The Principles

The Complementary Ecosystem

## **Experiments with Reed and Earth**

Walls and Columns

Framework

## **Design In Progress**

Injection of A New Urban Strategy

The City from Tabula Rasa

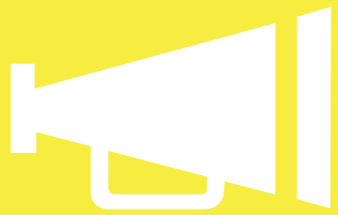
Architectural Design

Focus on Details

Impressions

## **Final Thoughts**

## **Discussion**



**3.2 MILLION PEOPLE** WERE DISPLACED WITHIN 2 YEARS  
WHICH IS **6%** OF WORLDWIDE REFUGEES (51,2 M)  
MORE THAN **300.000** ARRIVED AUGUST 2014 IN THE CAMPS OF KURDISTAN



PHOTOGRAPH BY EPA

**CAMP OR CITY?**  
WITHIN TWO YEARS



PHOTOGRAPH BY **BUSINESS INSIDER**

**BUY & SELL**  
TRADE MARKETS



PHOTOGRAPH BY EPA

DAILY LIFE

E.G. FOOD



PHOTOGRAPH BY KAI PFAFFENBACH/REUTERS

**IDENTITY**  
WHO ARE YOU?



PHOTOGRAPH BY **JAMAL SAIDI/REUTERS**



NOT A SINGLE SHELTER IS IDENTICAL  
KENYA



PHOTOGRAPH BY **SCHALK VAN ZUYDAM**

**OVERALL DESIGN QUESTION**

**HOW TO REDEFINE KURDISTAN'S  
CURRENT REFUGEE CAMPS INTO AN  
OFF-THE-GRID (OTG) CITY USING  
LOCAL MATERIALS?**

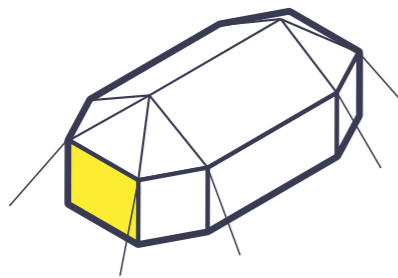
**THEMATIC RESEARCH QUESTION**

**HOW TO APPLY SOLAR ENERGY,  
LOCAL MATERIALS AND RECYCLING  
METHOD(S) TO MANIFEST A SELF-  
SUFFICIENT REFUGEE CITY?**



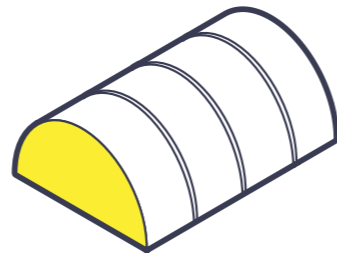


UNHCR FAMILY TENT



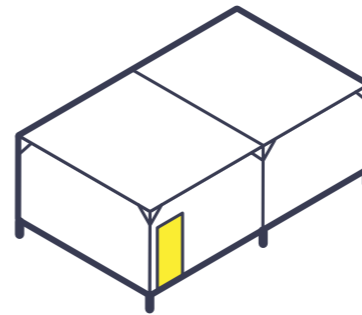
USABLE

UNHCR TENT MOD.2



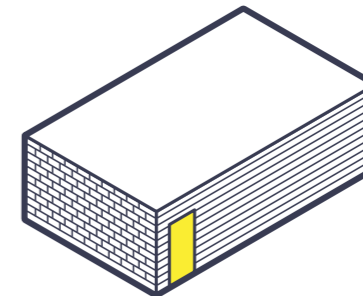
FLOOR

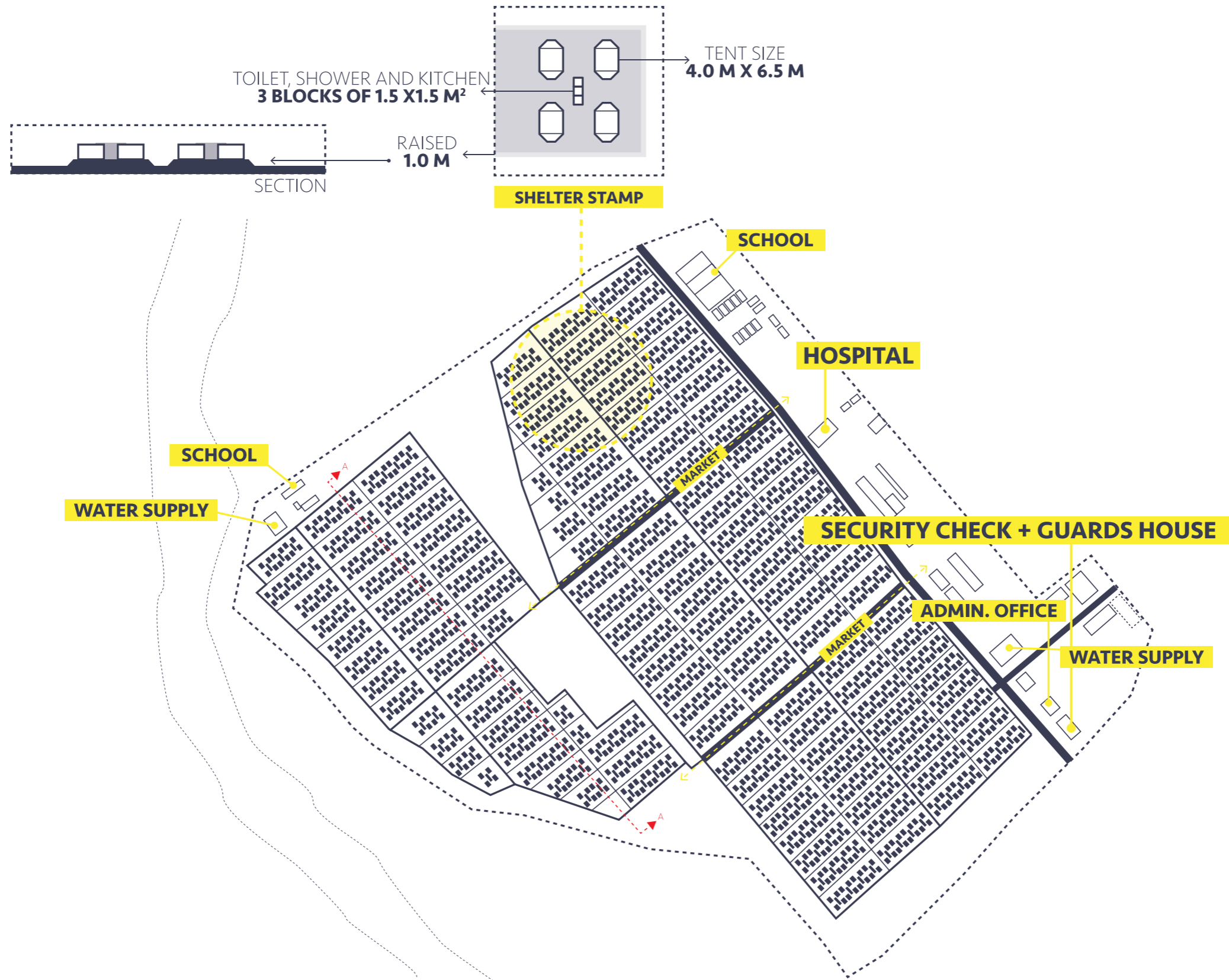
"CARAVAN" SHELTER



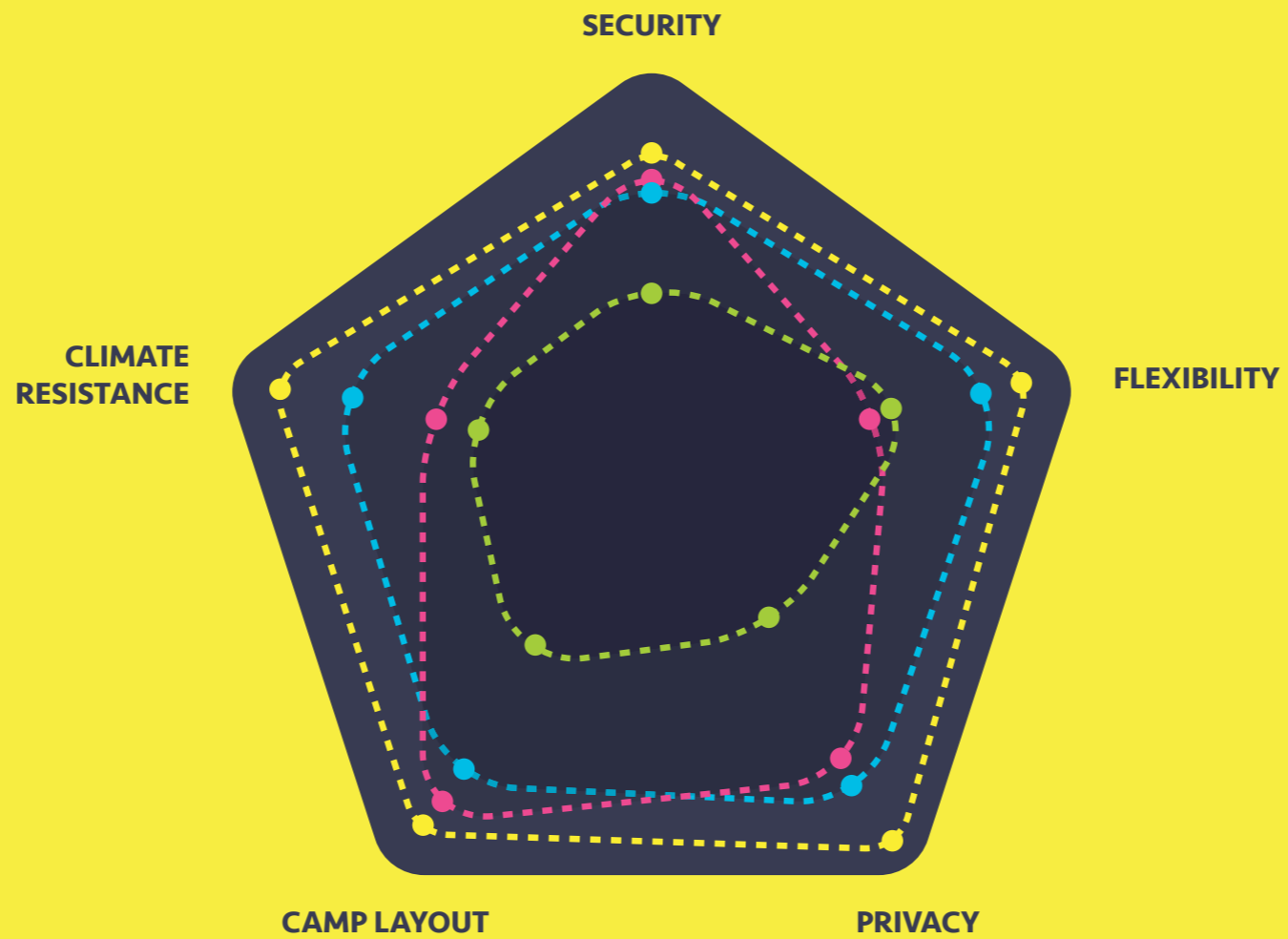
AREA

CEMENT BLOCKS BLD.





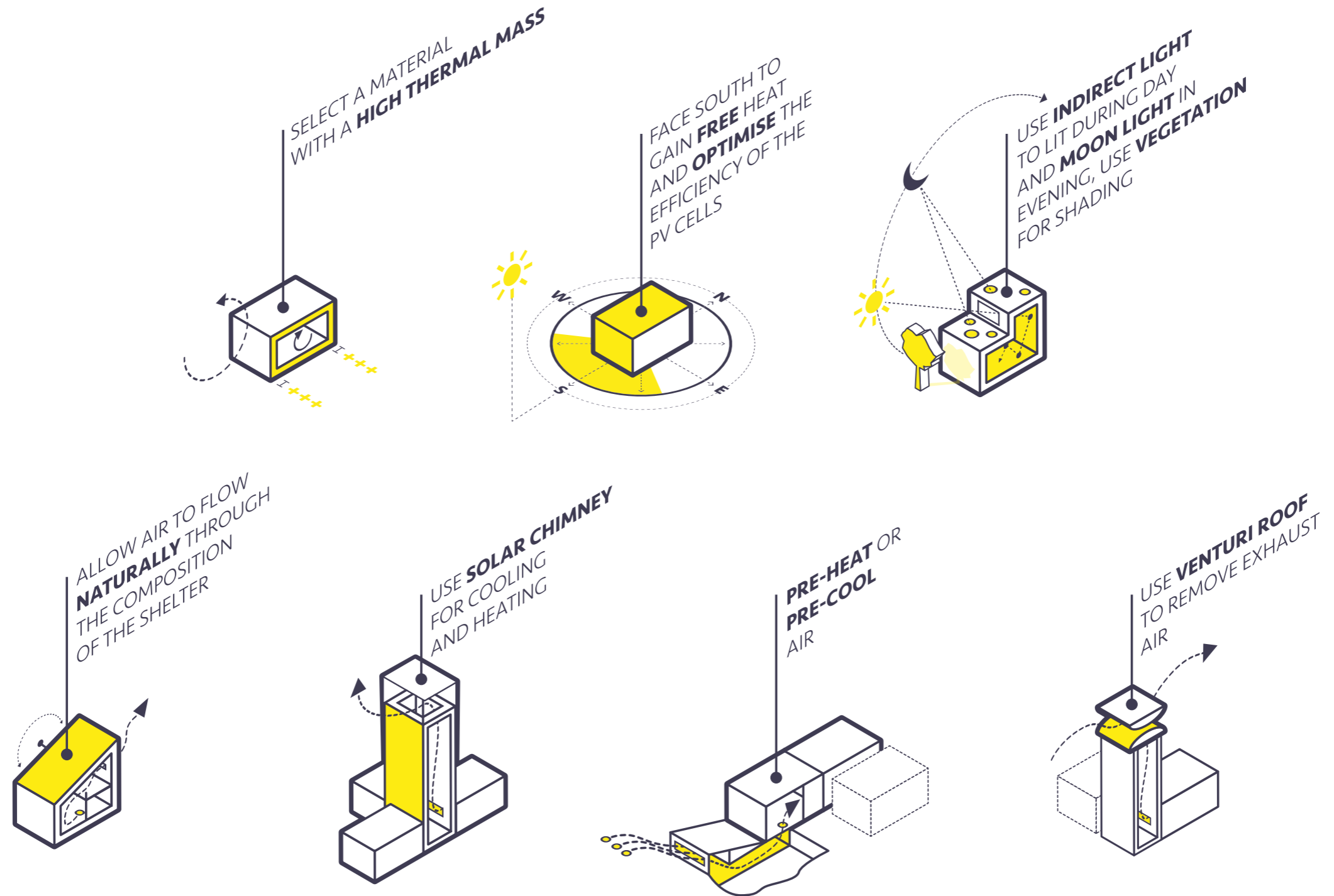
**COMPARISON CHART**  
BASED ON THE THREE CAMPS



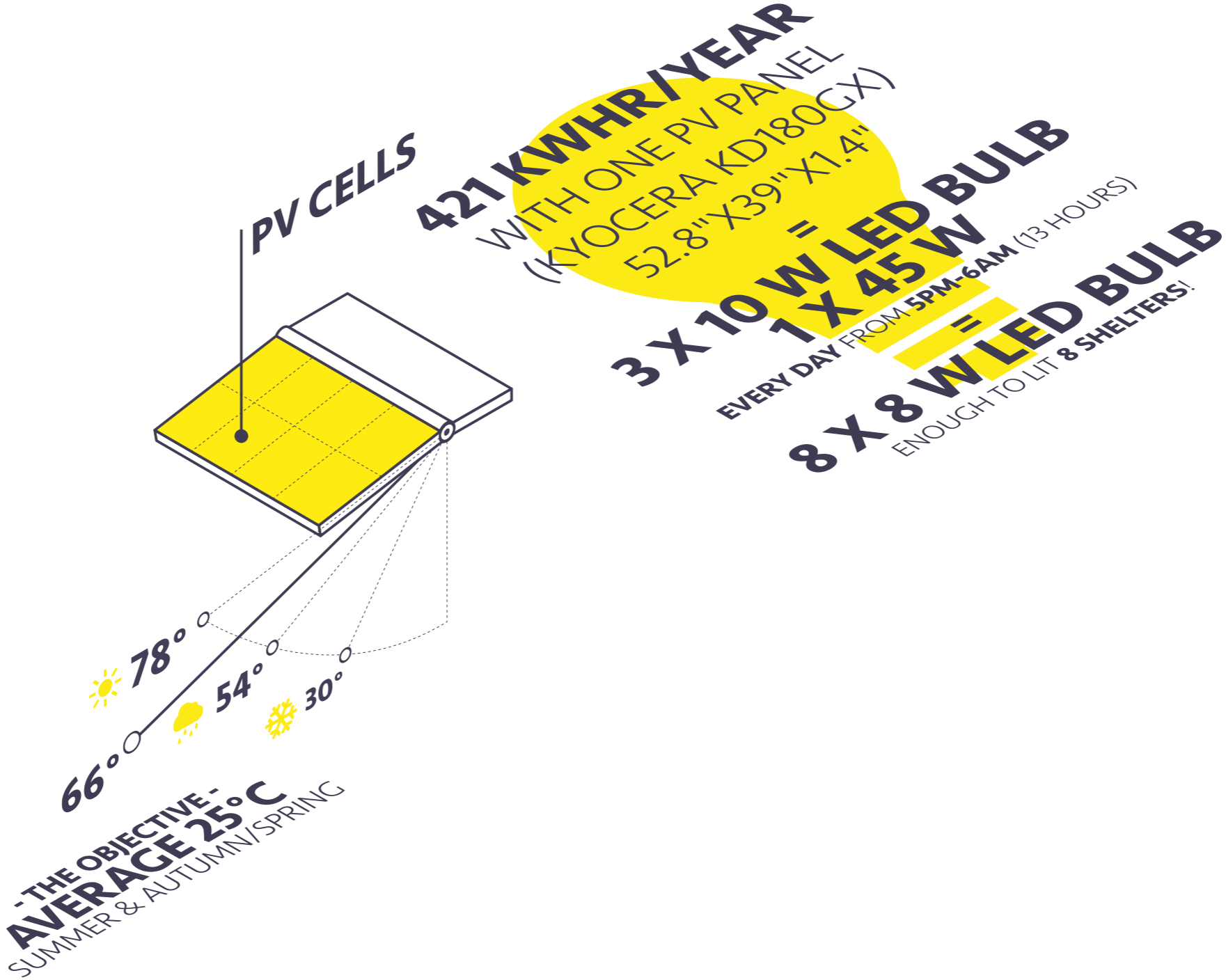
- ARBAT TRANSITIONAL CAMP
- ARBAT MAIN CAMP
- DARA SHAKRAN CAMP
- MY GOAL

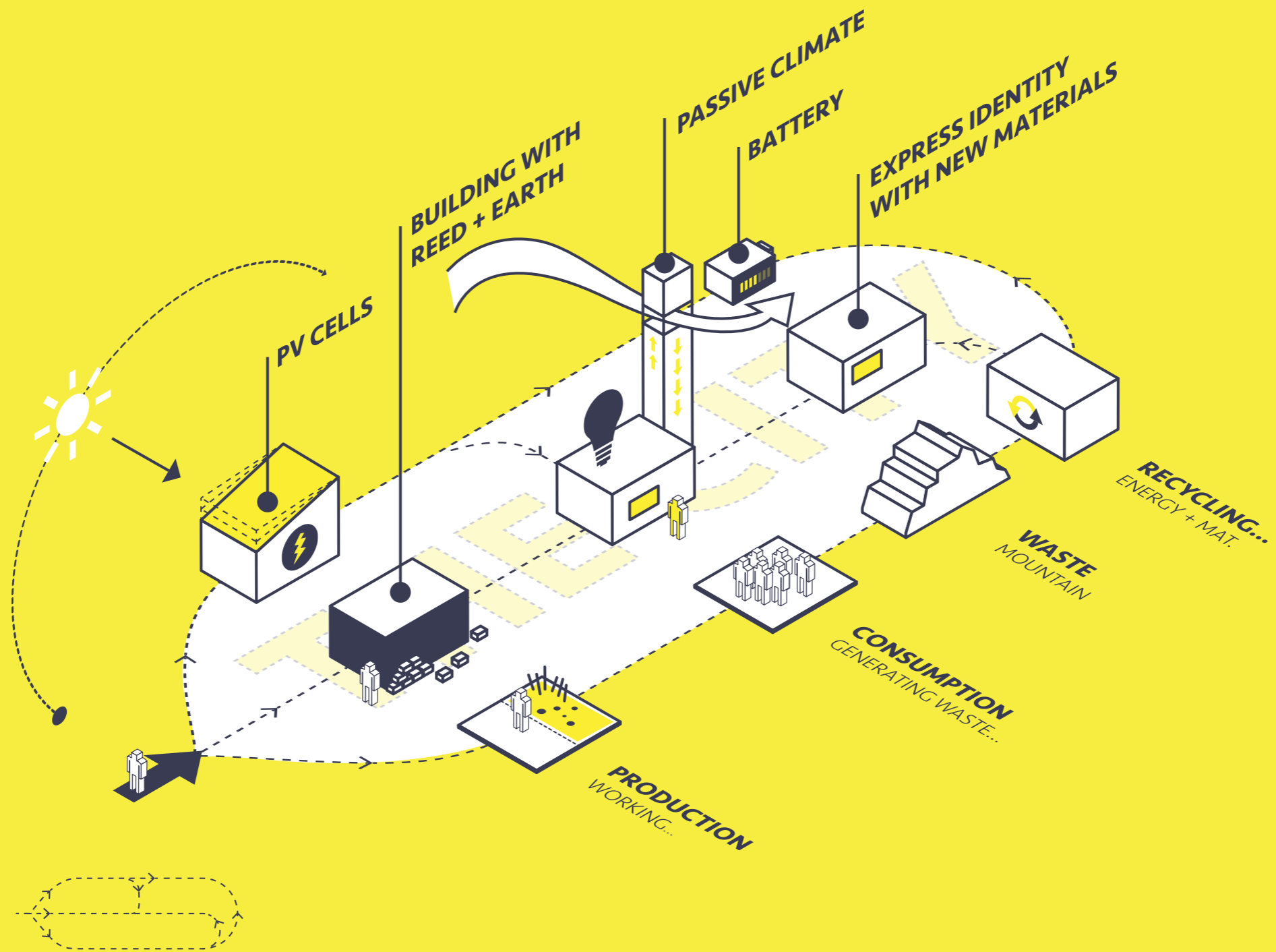


## PASSIVE SOLAR APPROACH



HOW MUCH PV CELLS IS REQUIRED TO LIT A SEGMENT OF THE CITY?

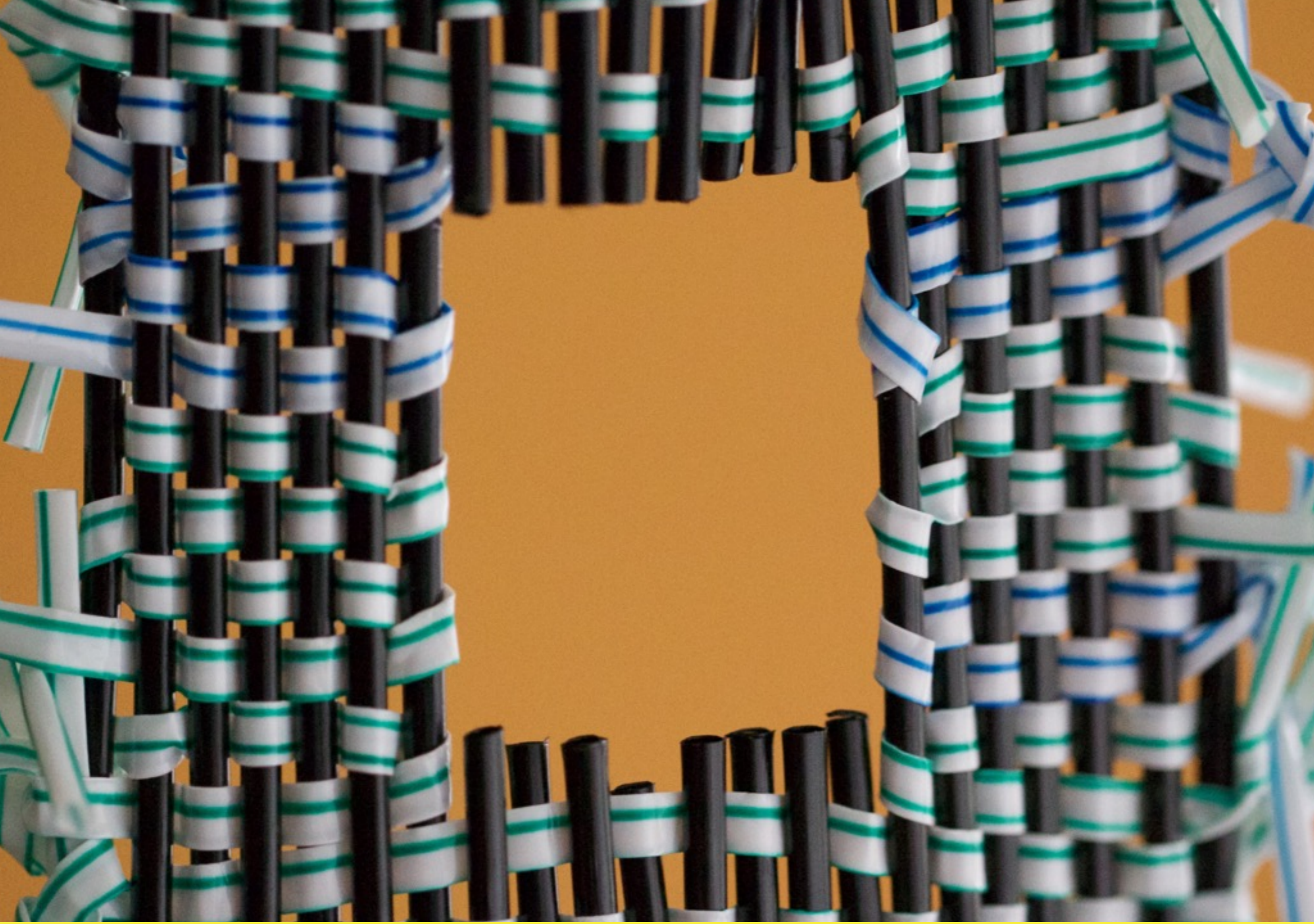














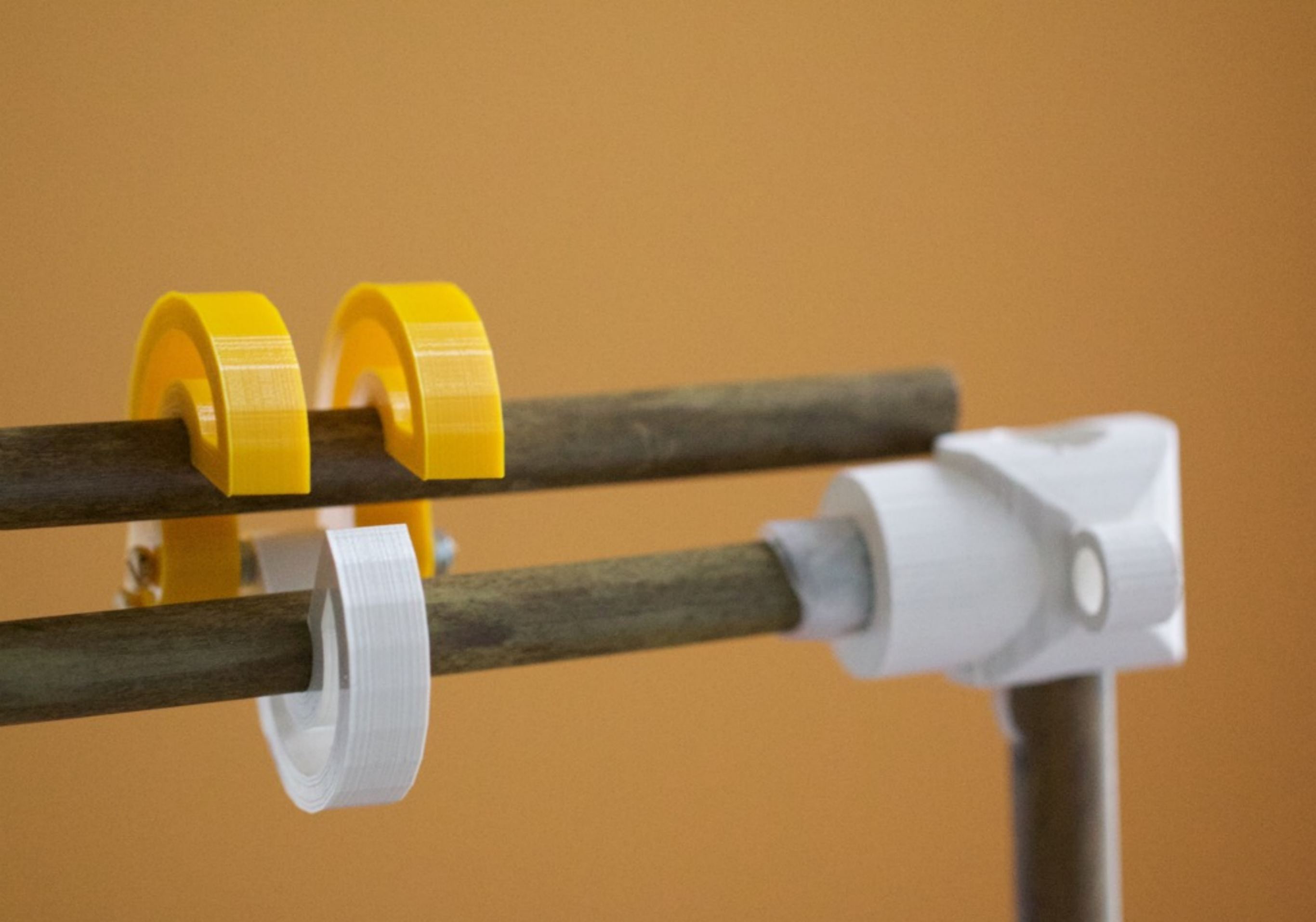














# STEP ONE

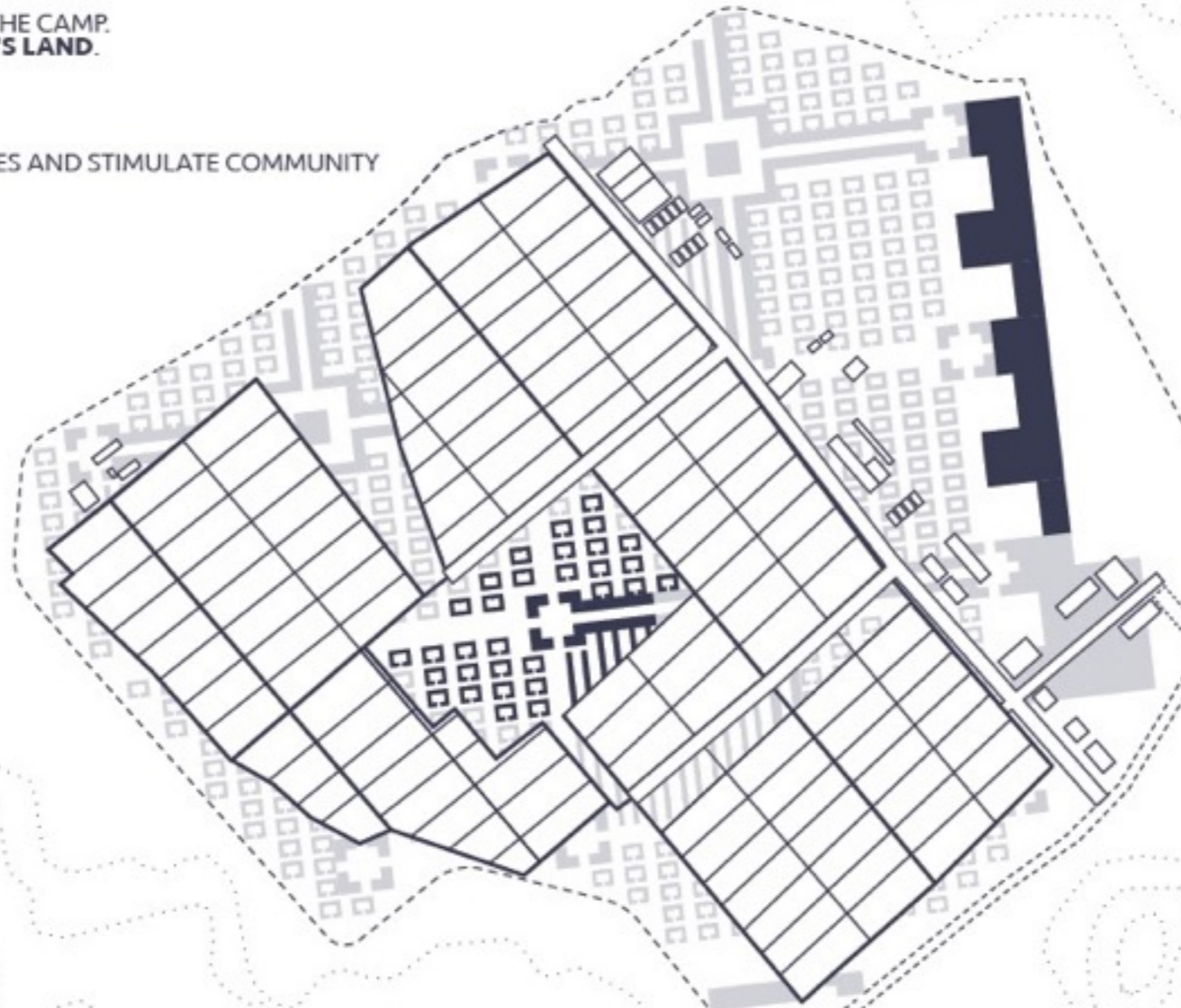
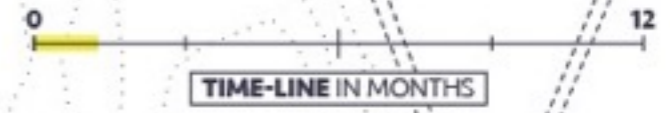
THE INITIATION

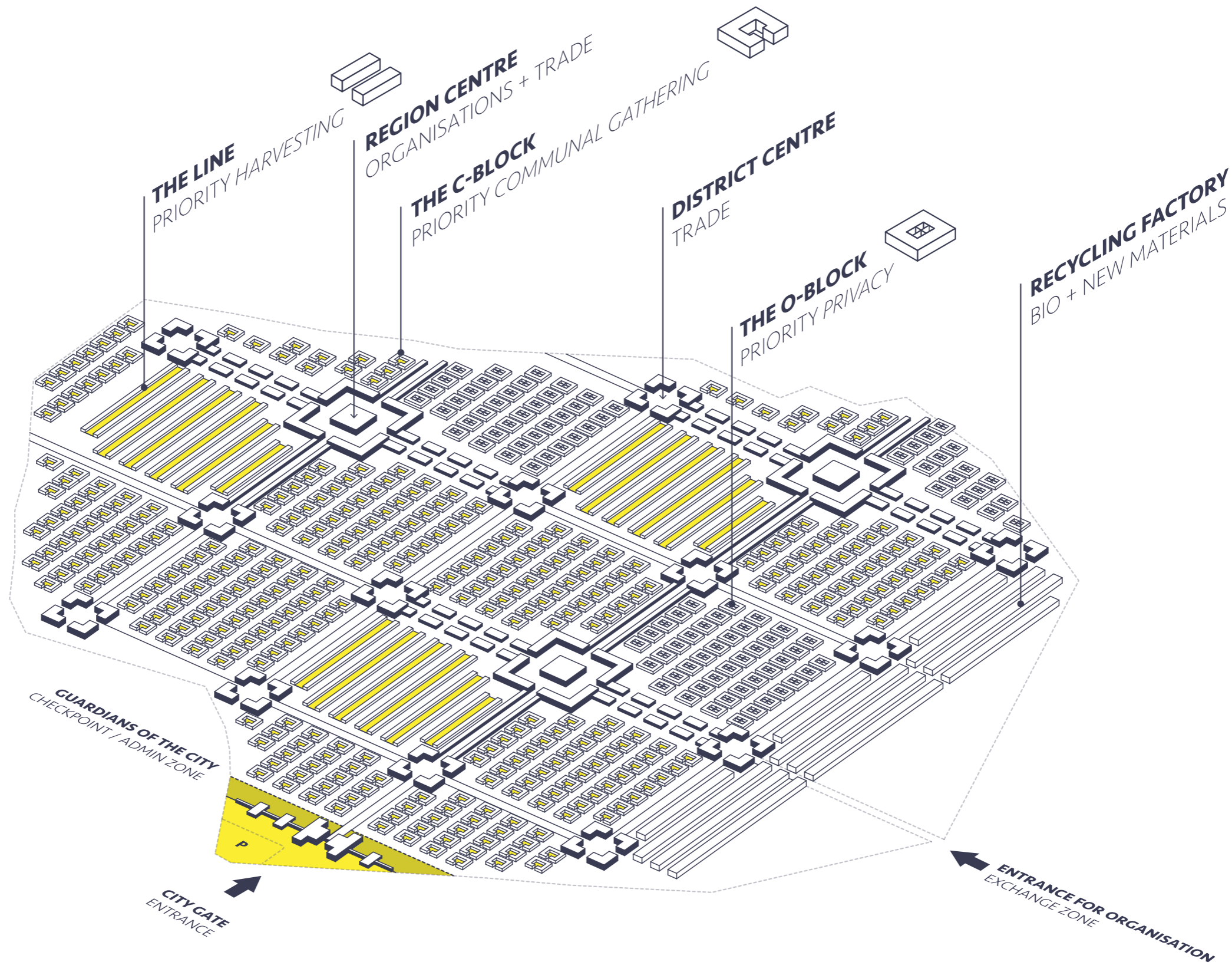
## INSTRUCTIONS

INJECT A **SPECIFIC MARKET NODE** IN THE CAMP.  
ADD **THE FACTORIES** IN THE **NO MAN'S LAND**.

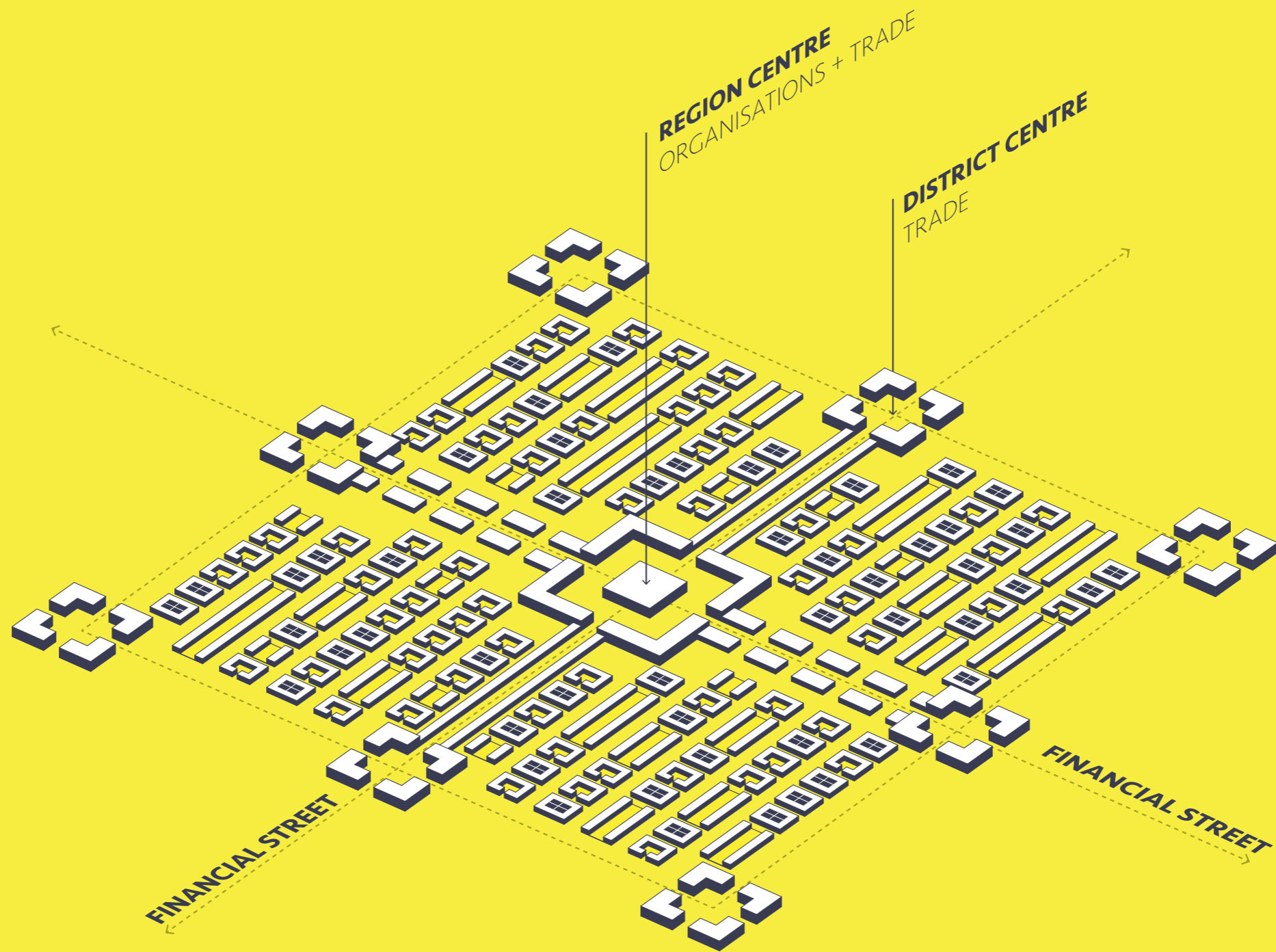
## OBJECTIVE

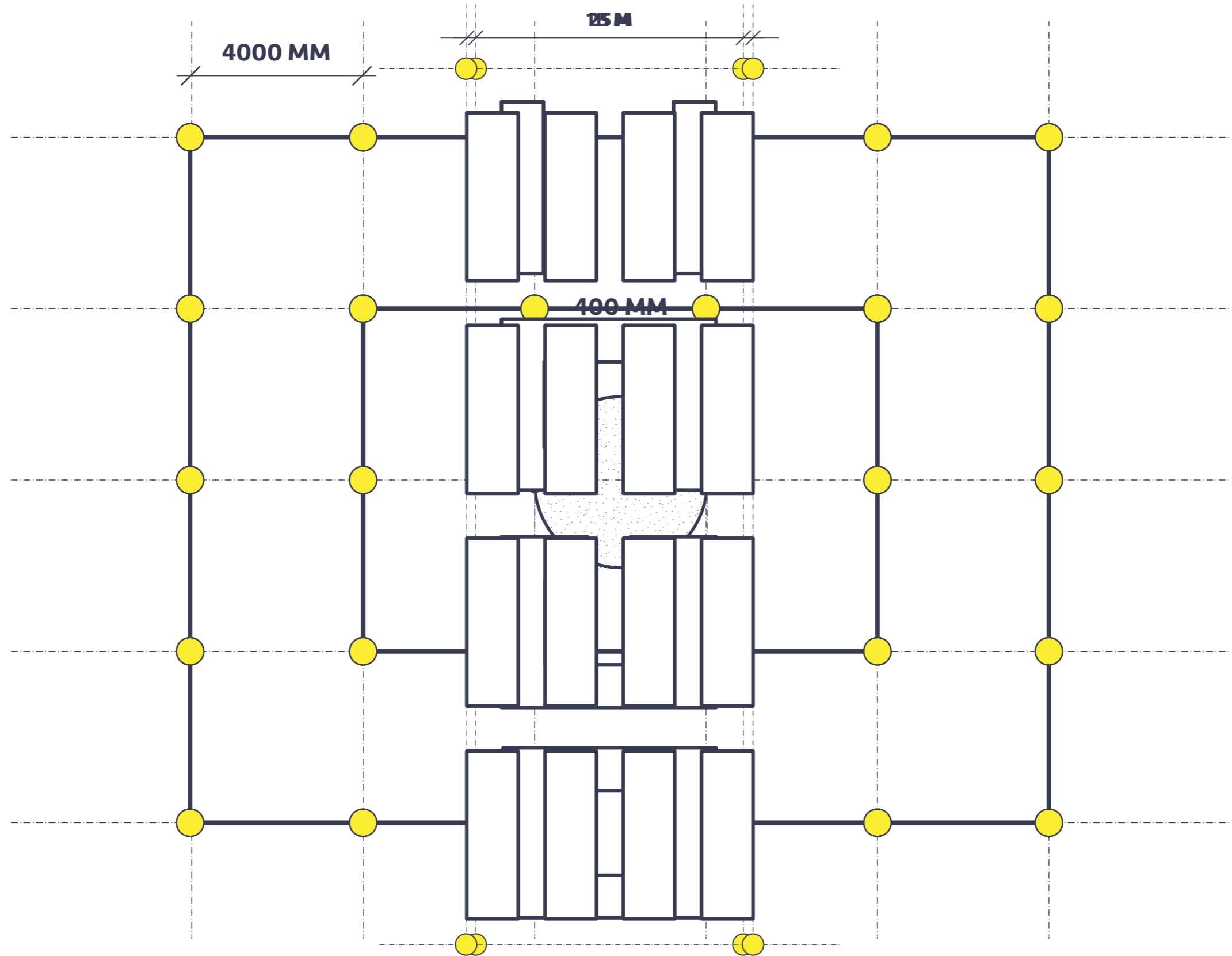
BREAK THE CURRENT RIGID BOUNDARIES AND STIMULATE COMMUNITY

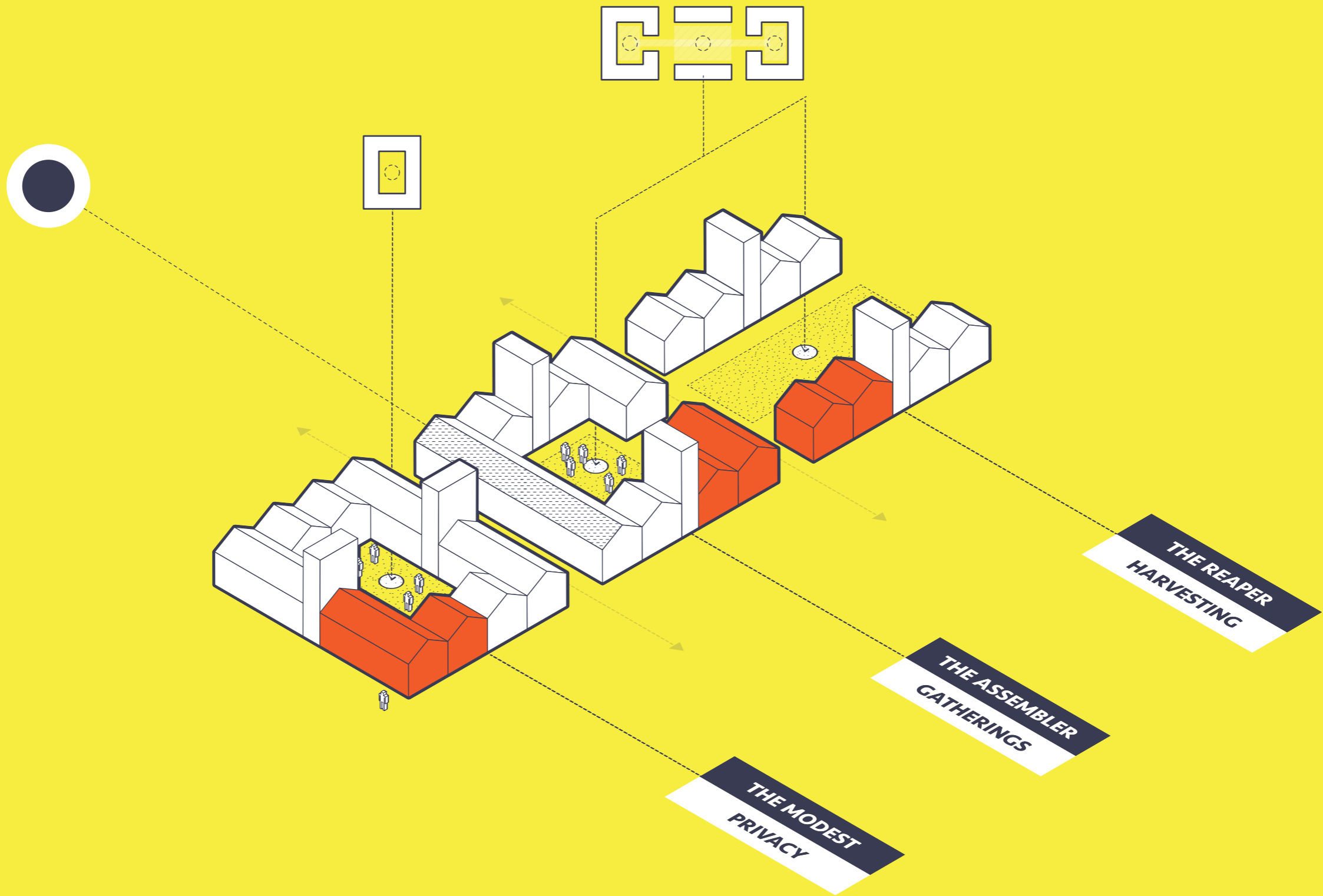






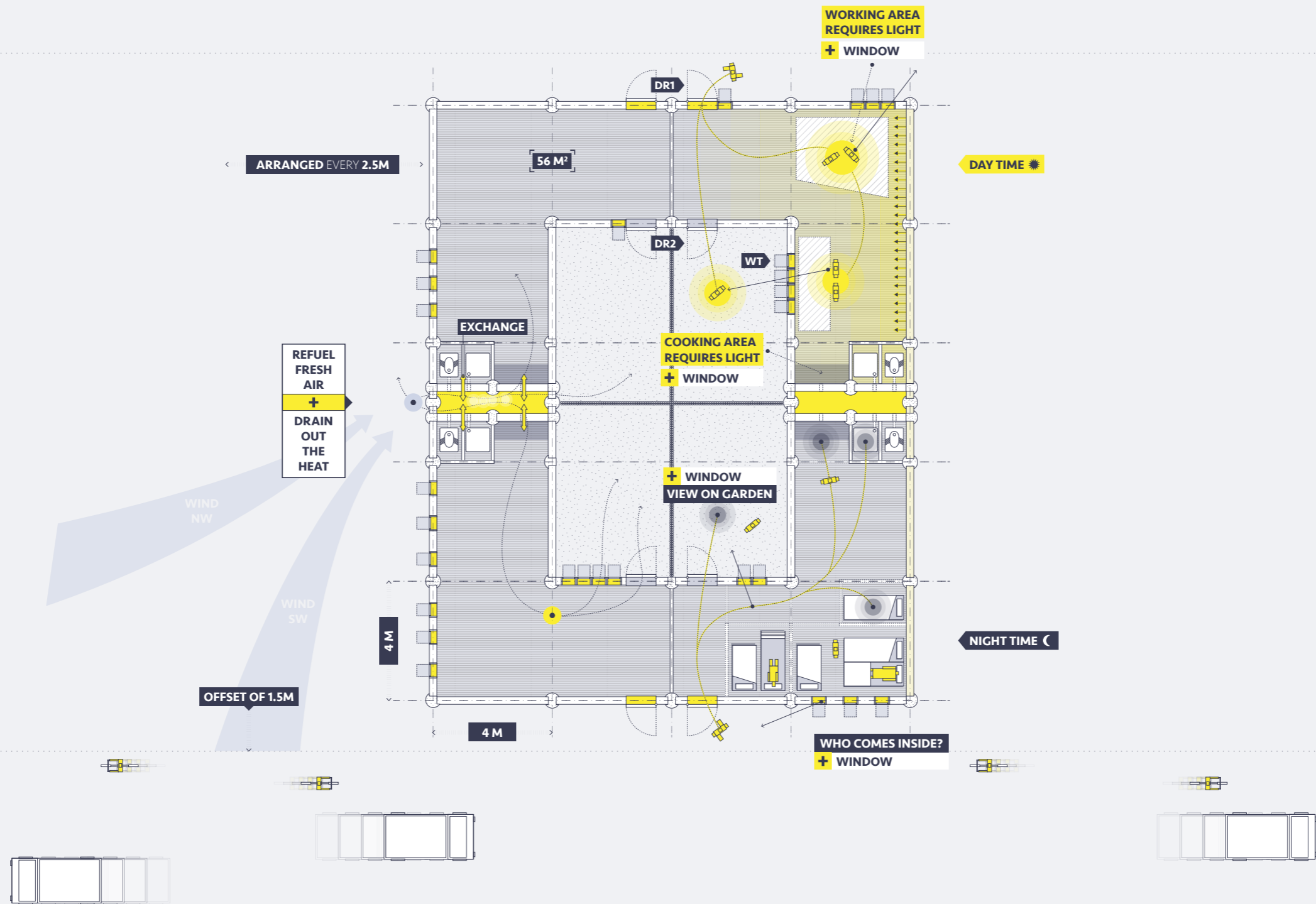






# THE MODEST

FOCUSED TOWARDS THE INSIDE



**WORKING AREA  
REQUIRES LIGHT**

**+ WINDOW**

**ARRANGED EVERY 2.5M**

**56 M<sup>2</sup>**

**DAY TIME** ☀

**DR1**

**DR2**

**WT**

**EXCHANGE**

**COOKING AREA  
REQUIRES LIGHT**

**+ WINDOW**

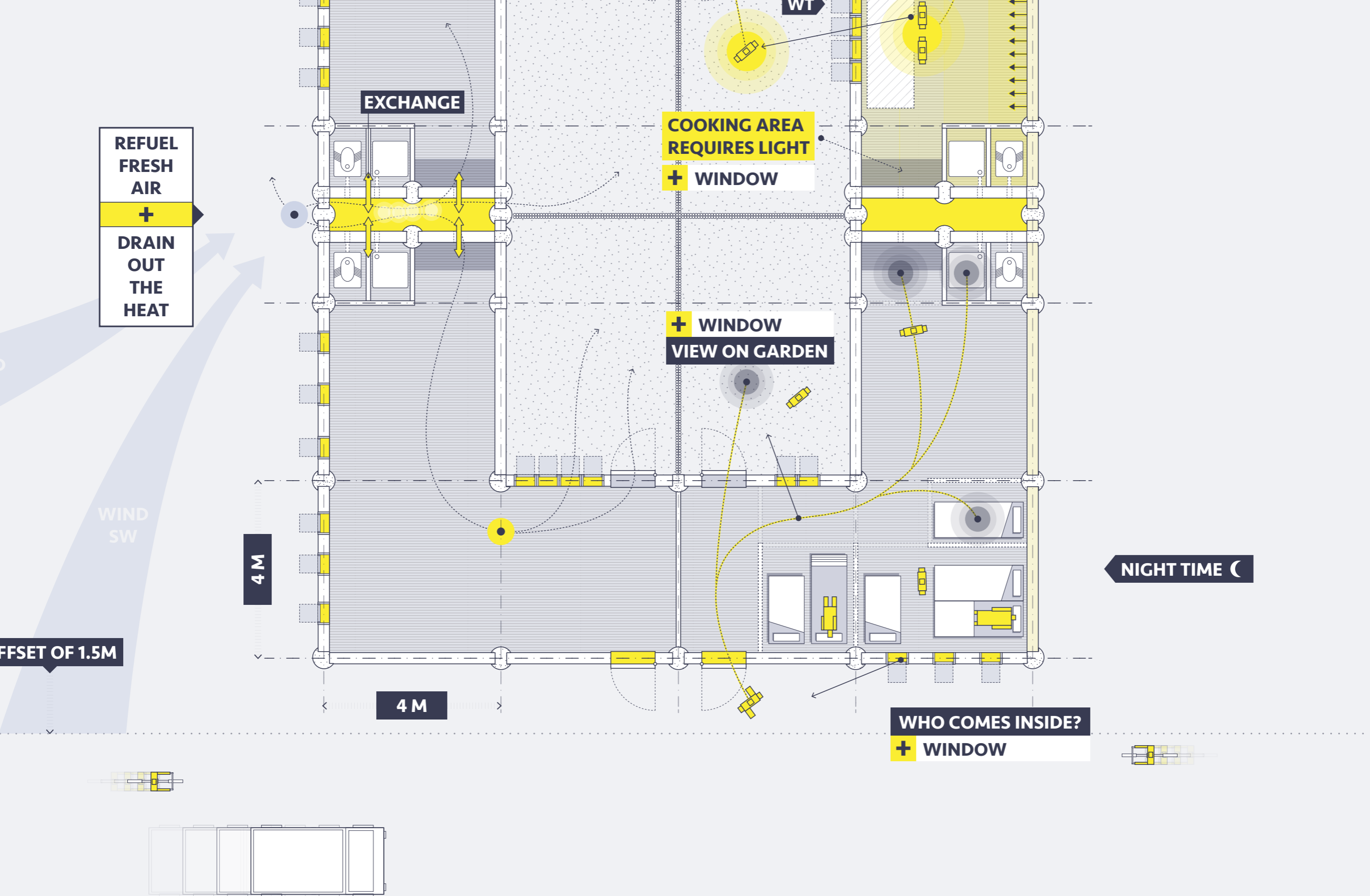
**+ WINDOW  
VIEW ON GARDEN**

**REFUEL  
FRESH  
AIR**

**+**

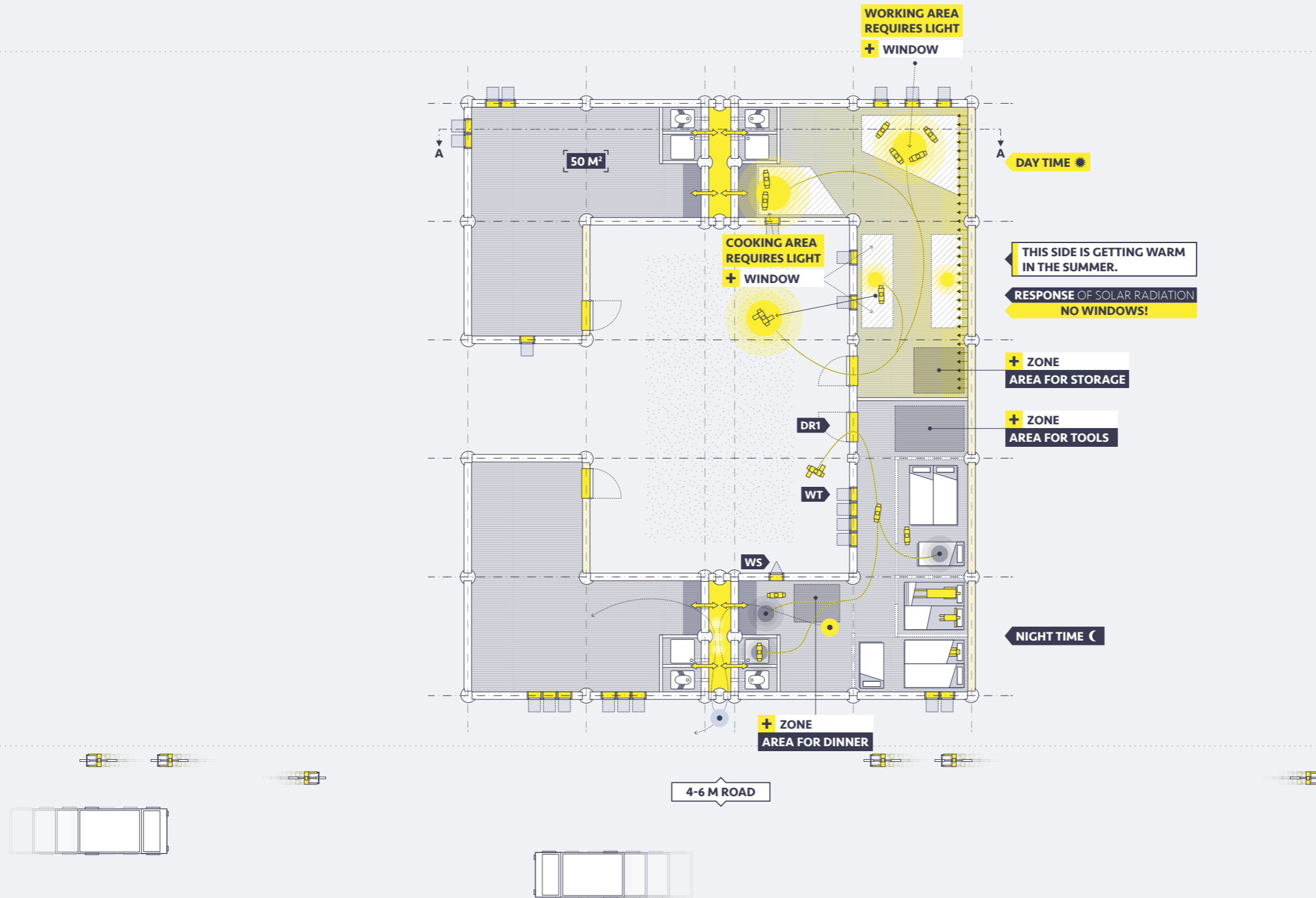
**DRAIN  
OUT  
THE  
HEAT**

**WIND  
SW**



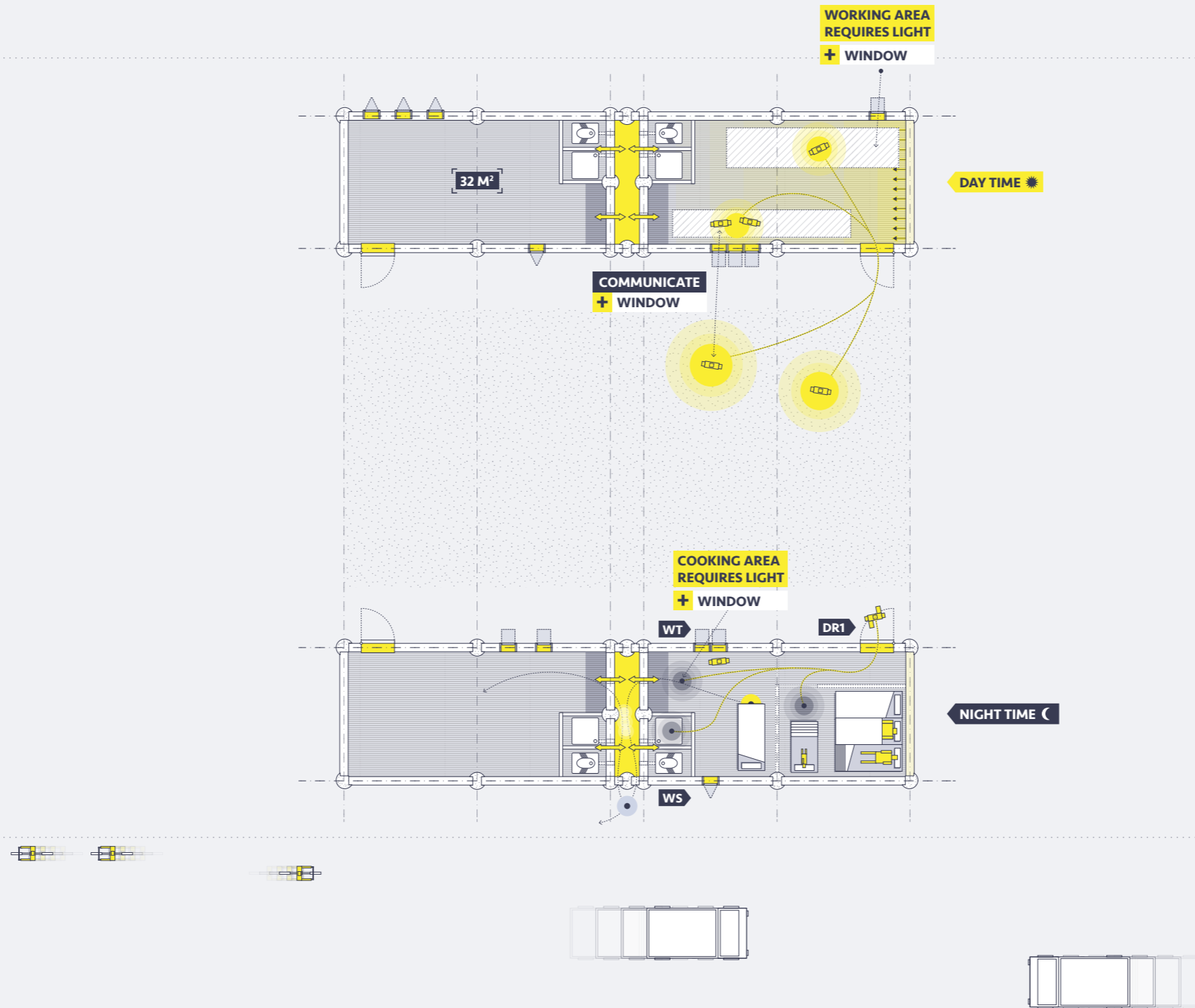
# THE ASSEMBLER

FOCUSED ON UNITY



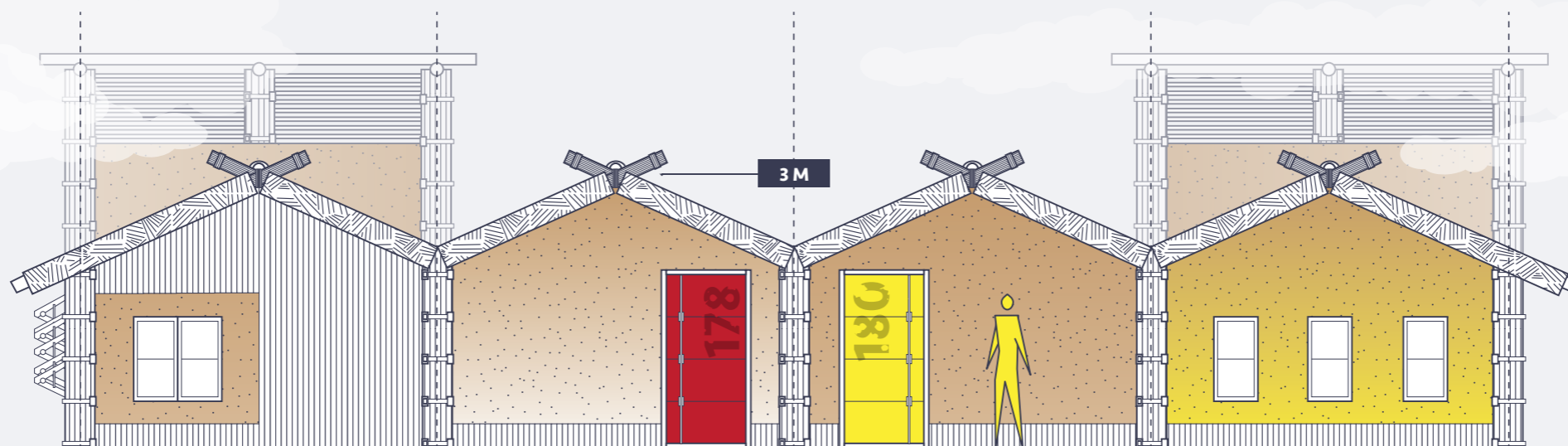
# THE REAPER

FOCUSED ON PRODUCTION



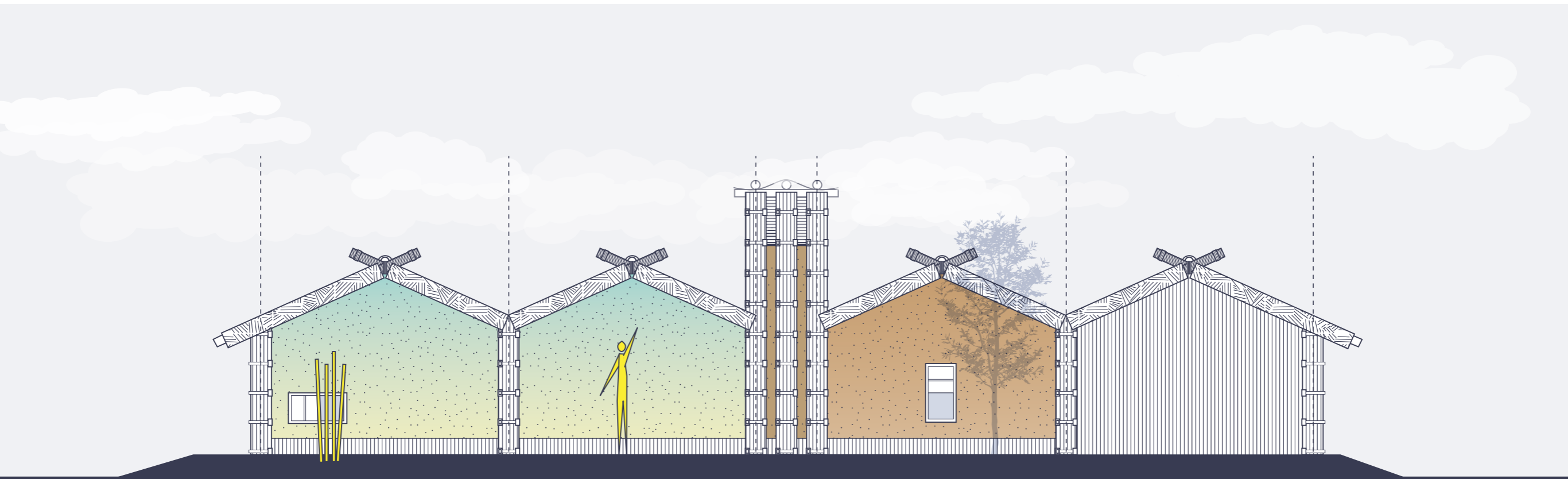






**THE MODEST**

WEST FACADE



**THE ASSEMBLER**

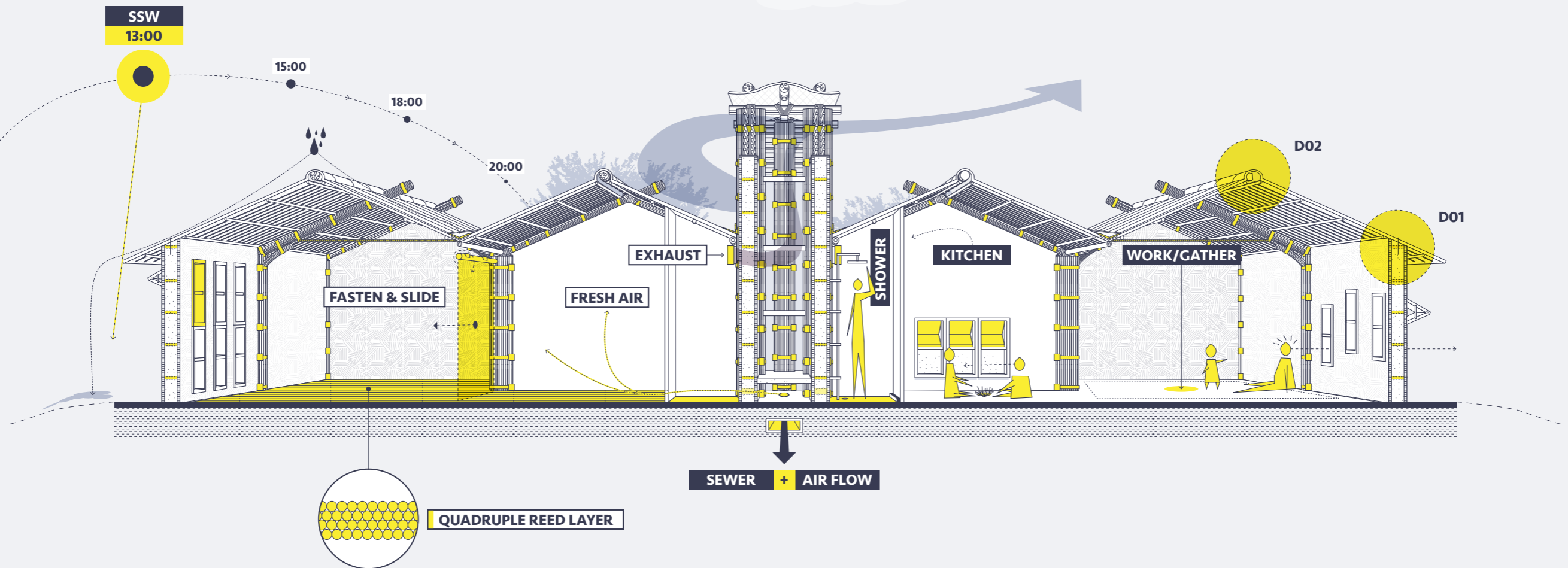
SOUTH FACADE

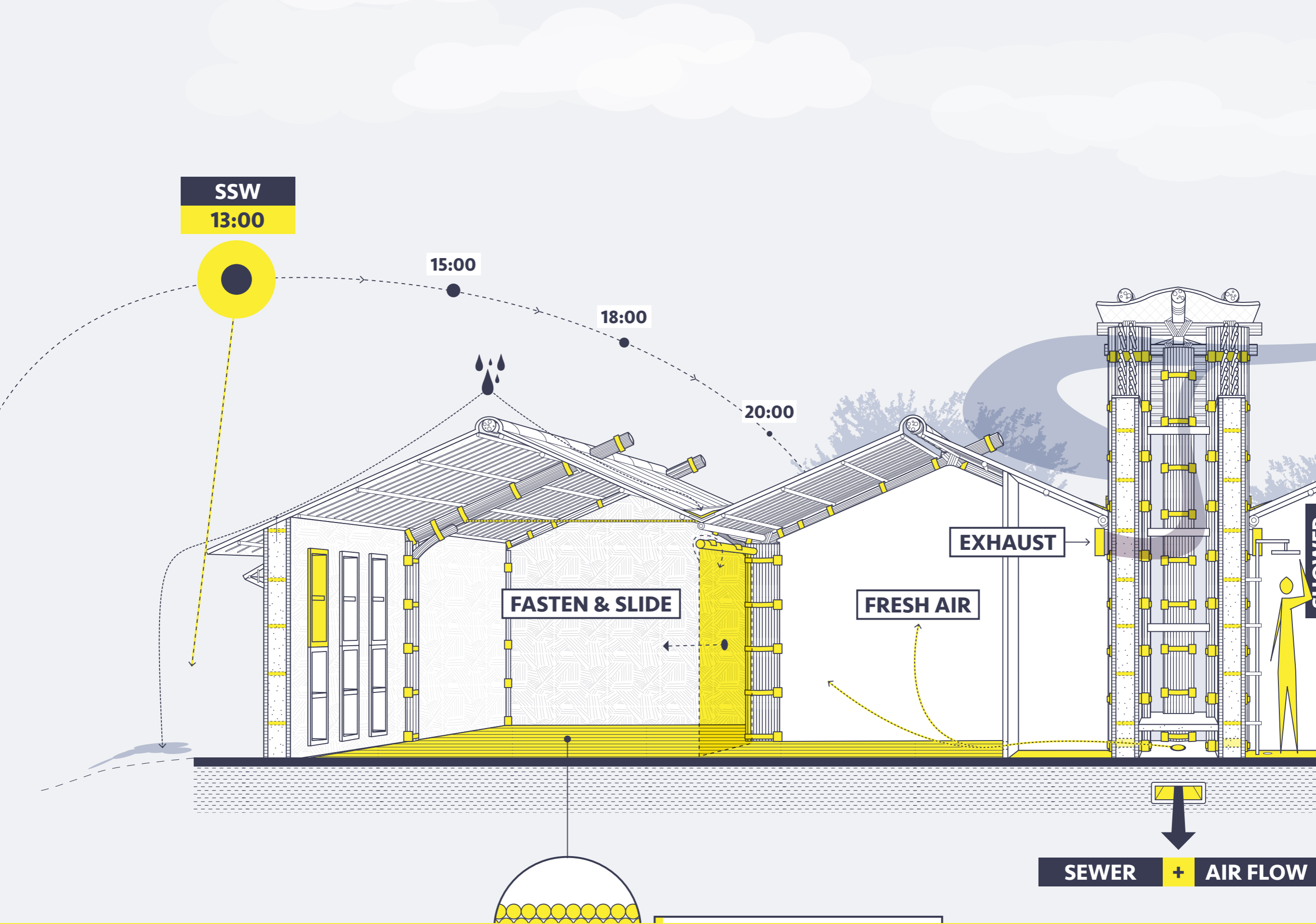


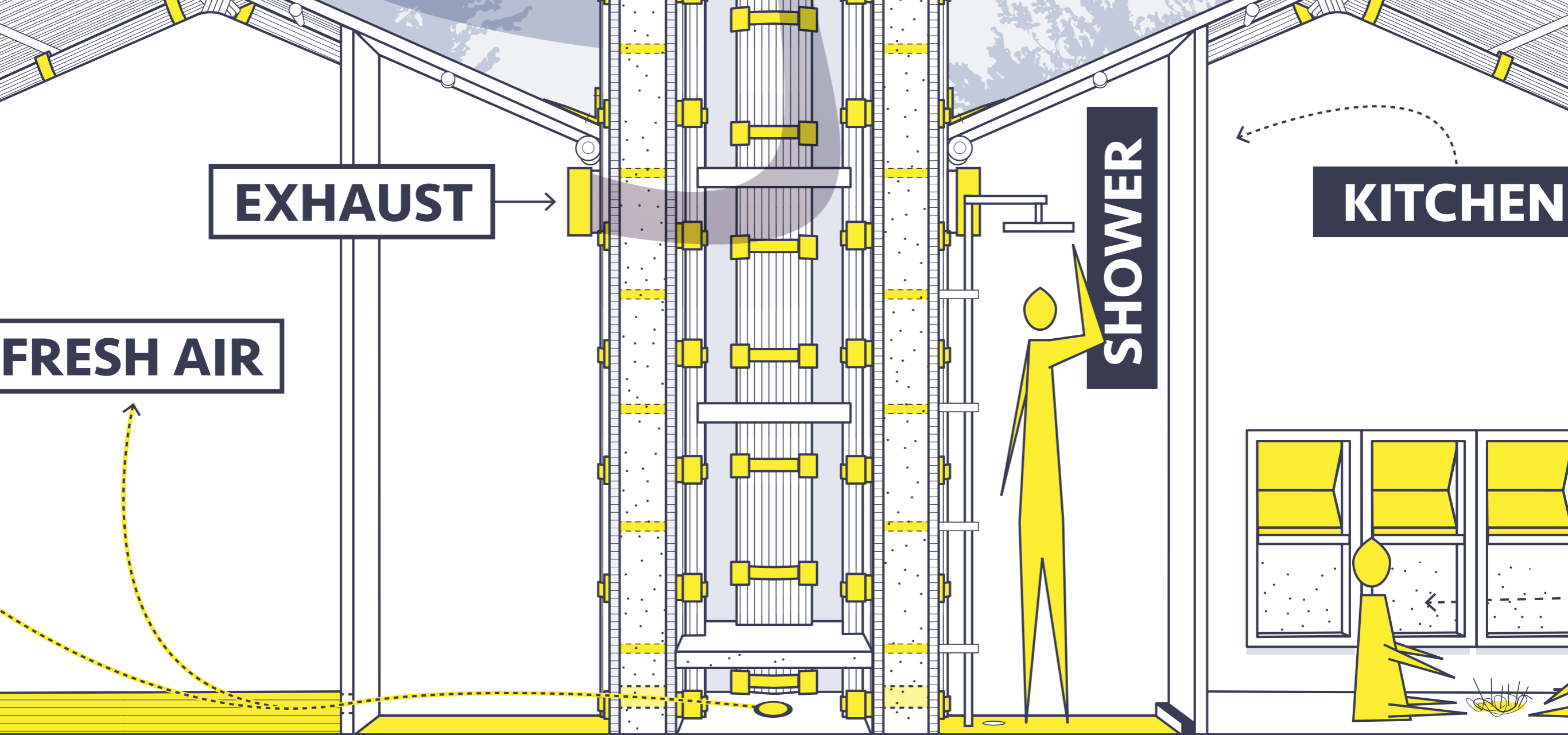
**THE REAPER**

NORTH FACADE

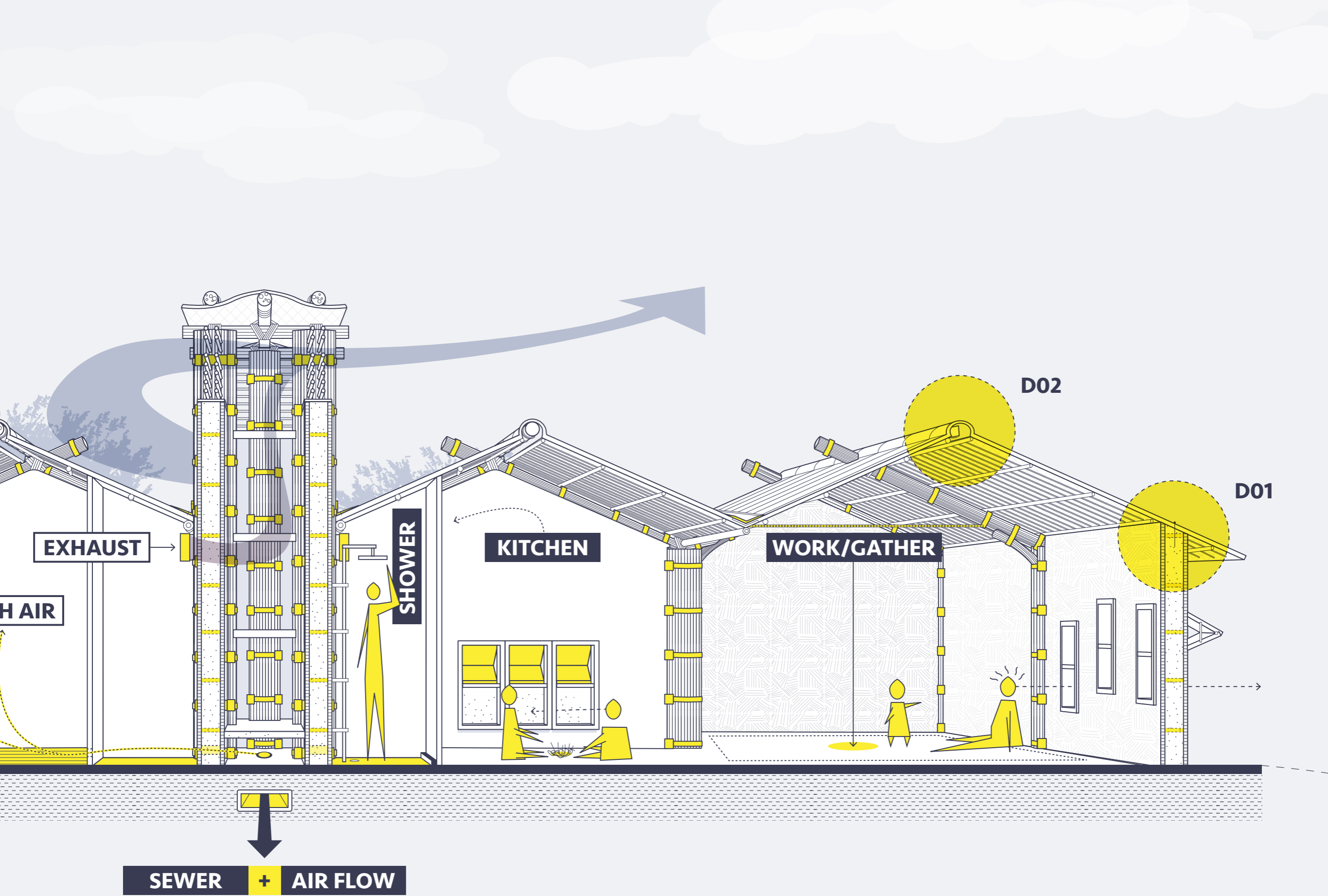
# A-A SECTION OF THE ASSEMBLER



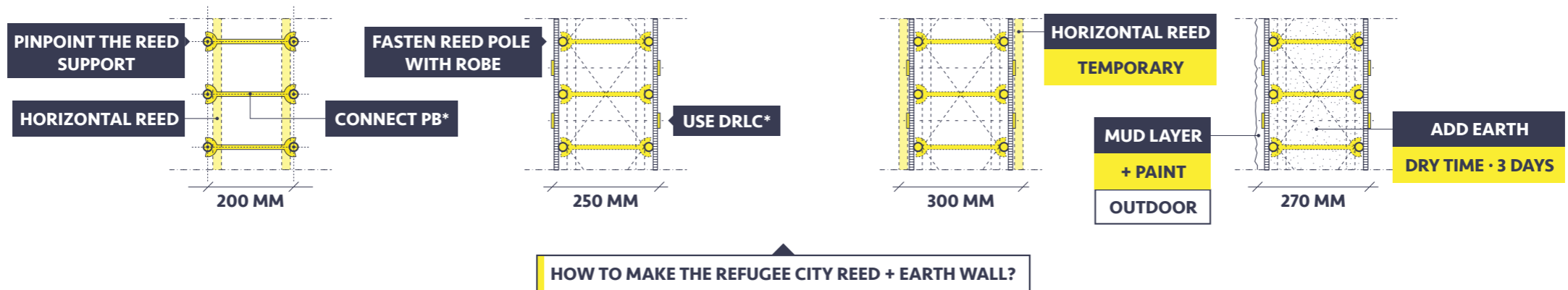




**SEWER + AIR FLOW**

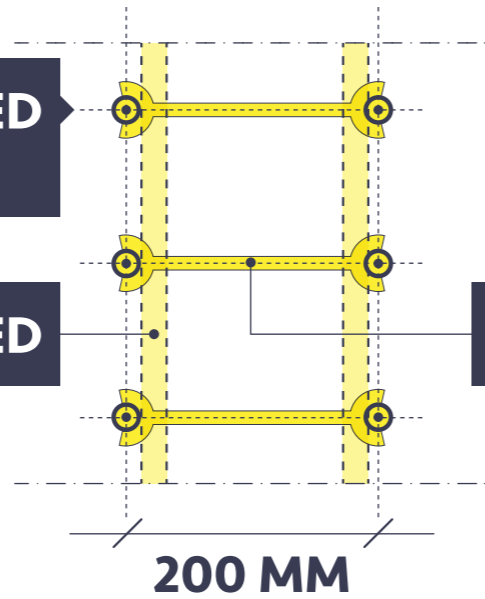






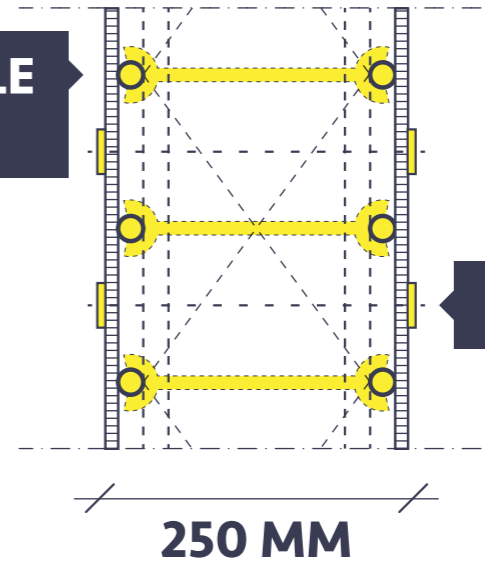
**PINPOINT THE REED SUPPORT**

**HORIZONTAL REED**



**FASTEN REED POLE WITH ROBE**

**CONNECT PB\***

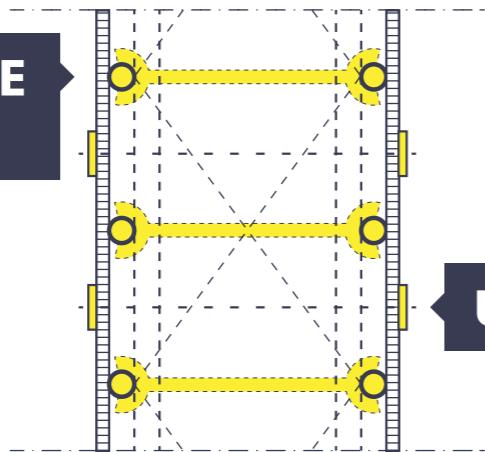


**USE DRLC\***

**HOW TO MAKE THE REFUGEE CITY**

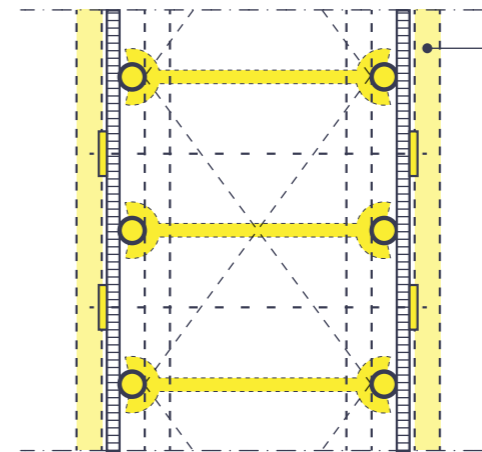
**FASTEN REED POLE WITH ROBE**

**CONNECT PB\***



**250 MM**

**USE DRLC\***

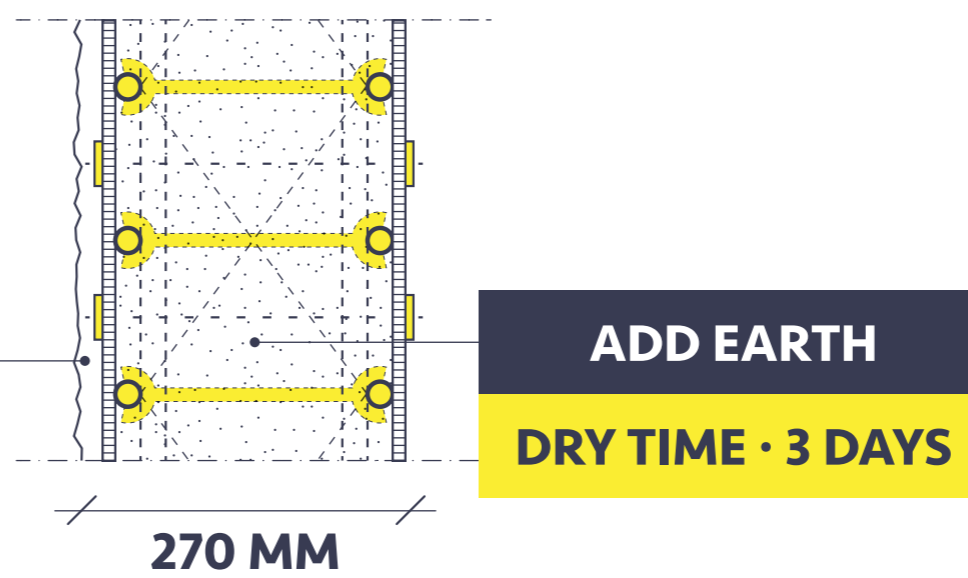
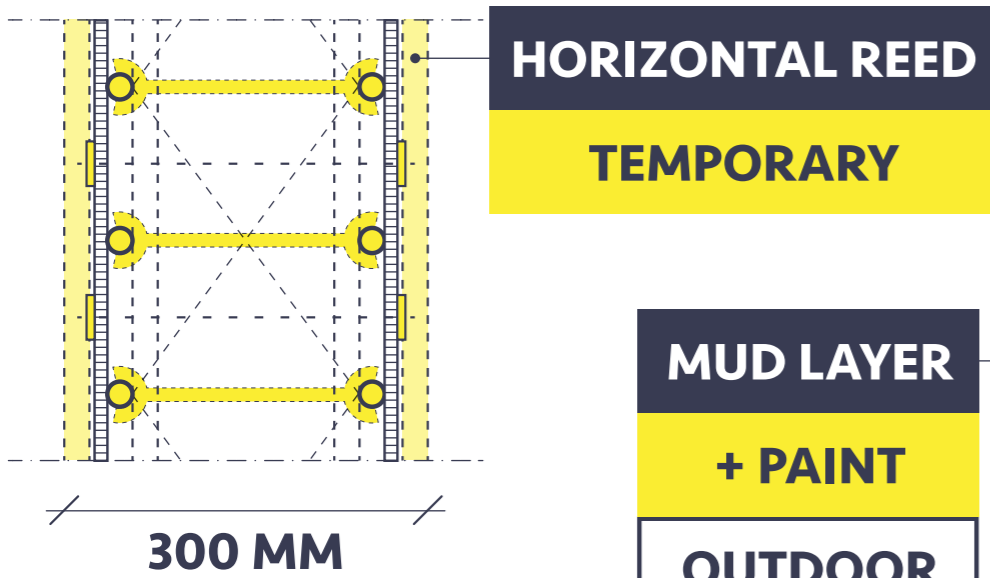


**300 MM**

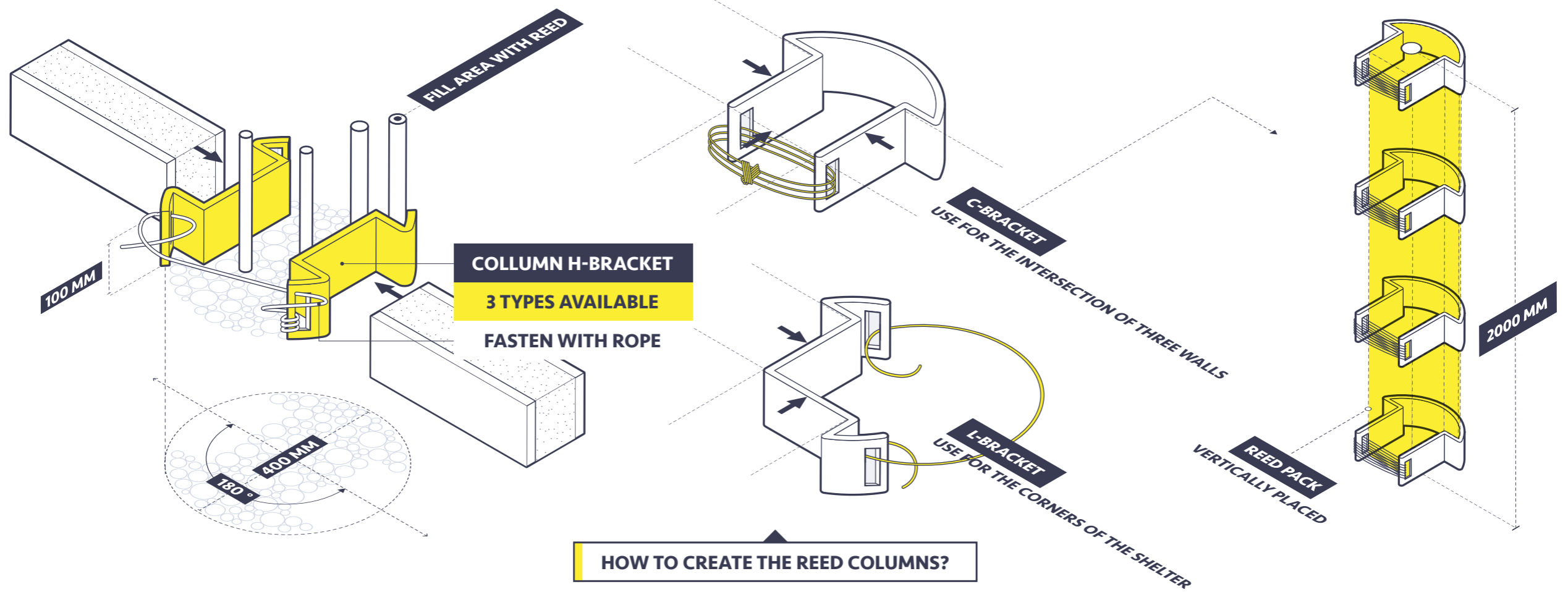
**HORIZONTAL REED  
TEMPORARY**

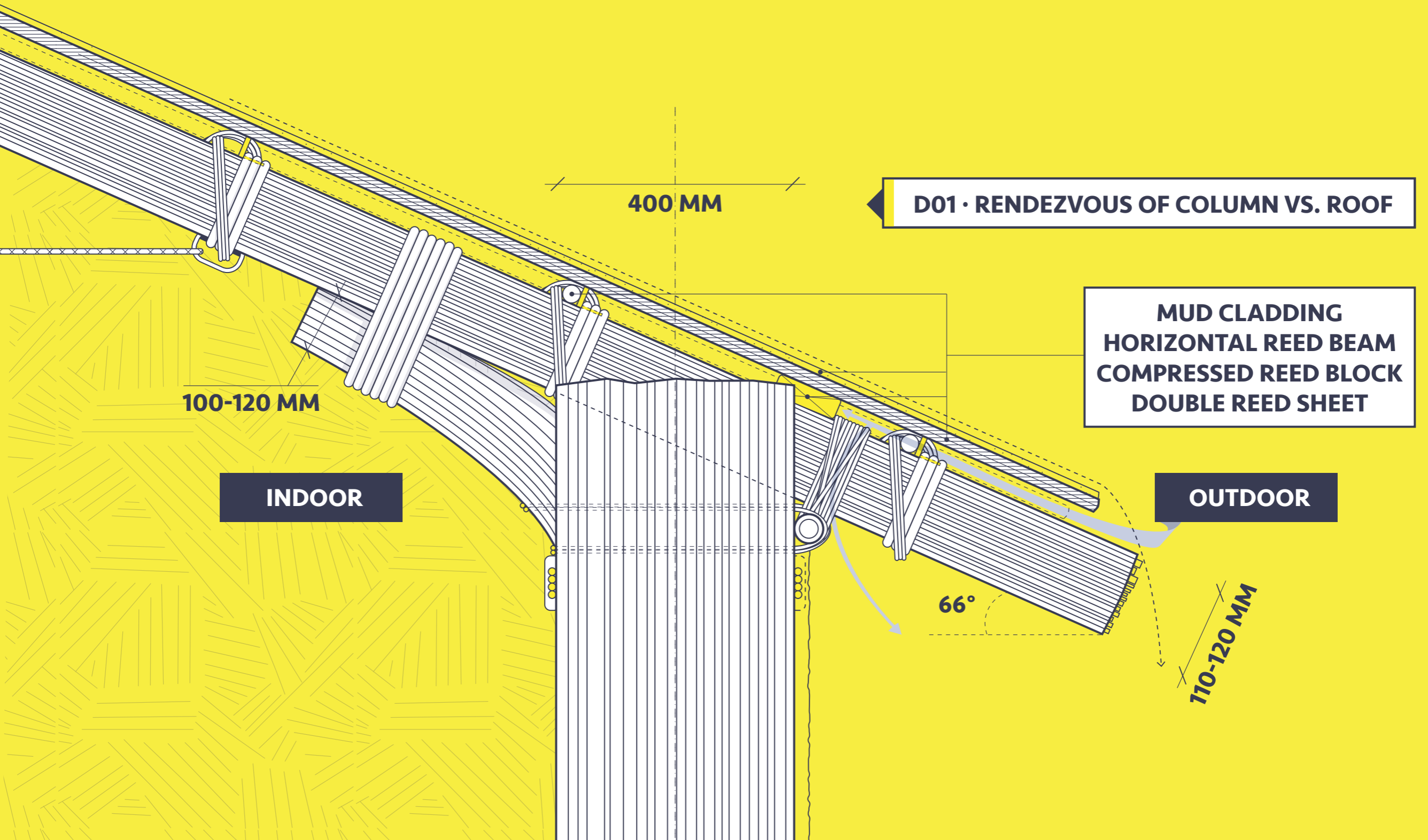
**MUD LAYER  
+ PAINT  
OUTDOOR**

**HOW TO MAKE THE REFUGEE CITY REED + EARTH WALL?**



**REED + EARTH WALL?**



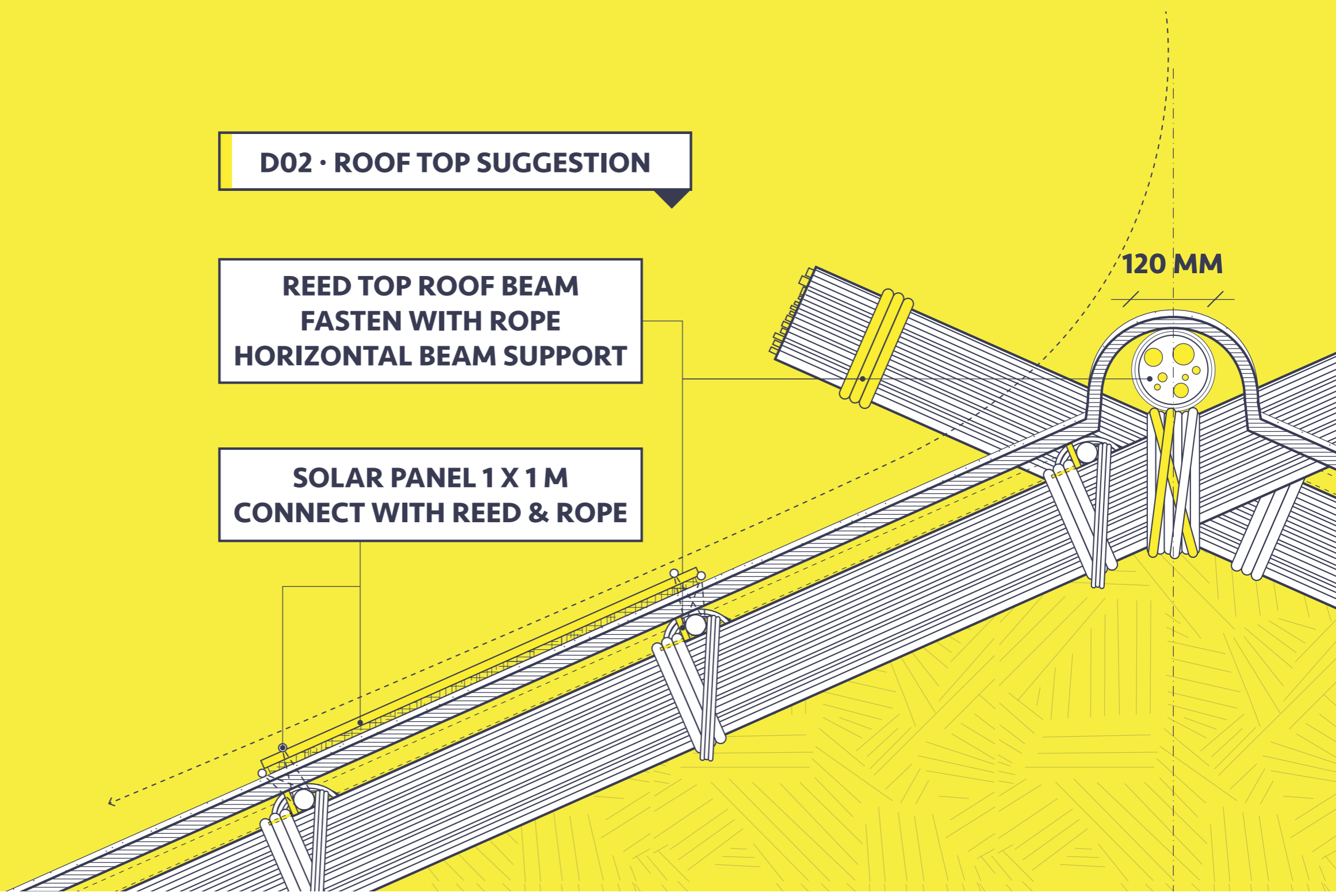


**D02 · ROOF TOP SUGGESTION**

**REED TOP ROOF BEAM  
FASTEN WITH ROPE  
HORIZONTAL BEAM SUPPORT**

**SOLAR PANEL 1 X 1 M  
CONNECT WITH REED & ROPE**

**120 MM**











## FINAL THOUGHT

Develop a **prototype** on site  
to learn more about the  
**building method** and  
**performance.**



THANK YOU FOR YOUR ATTENTION  
**DISCUSSION TIME**