

# REHABILITATION OF KHAN AL AHMAR SCHOOL

## instruction booklet



project by

ARCò



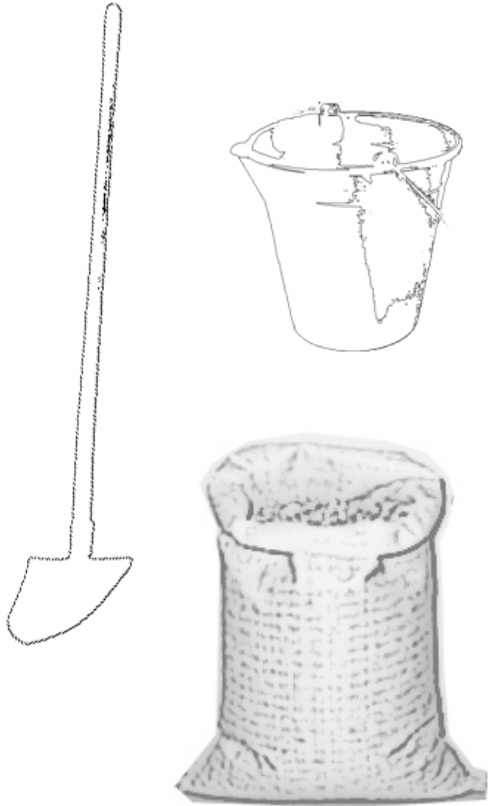
Società Cooperativa  
Via Lamarmora, 2  
20122 - Milano, Italy  
info@ar-co.org  
www.ar-co.org

organization

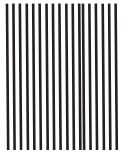
Vento di Terra  
N.G.O.

TOOLS

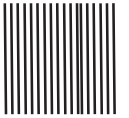
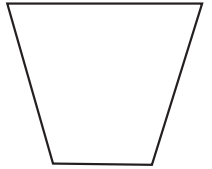
TO SEPARATE THE STRAW BALES  
FROM THE GROUND IT'S POSSIBLE TO  
USE EARTHBAGS



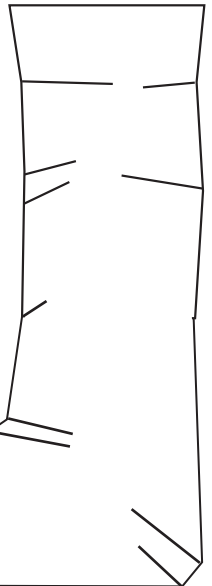
EARTH



PERFORATED  
BUCKET



BAG



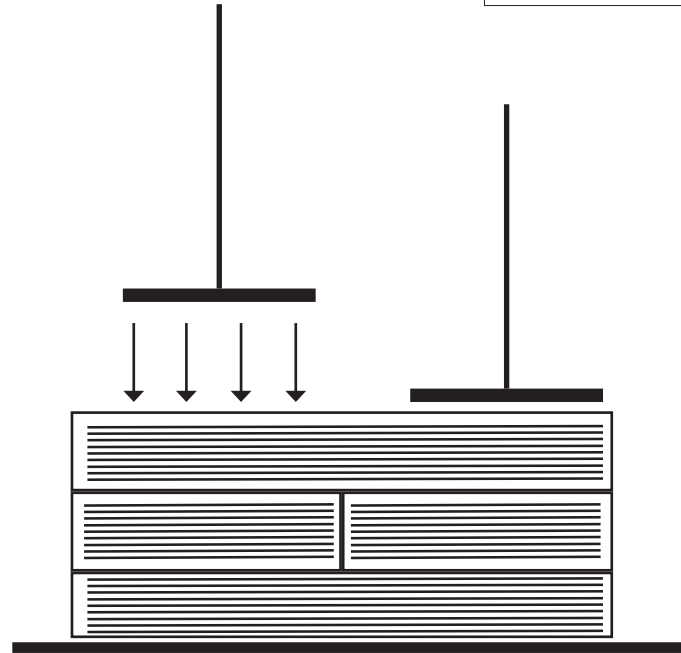
USING PERFORATED BUCKET  
AS A FUNNEL TO FILL THE BAGS WITH  
EARTH



# PRESSURE

2

## TOOLS



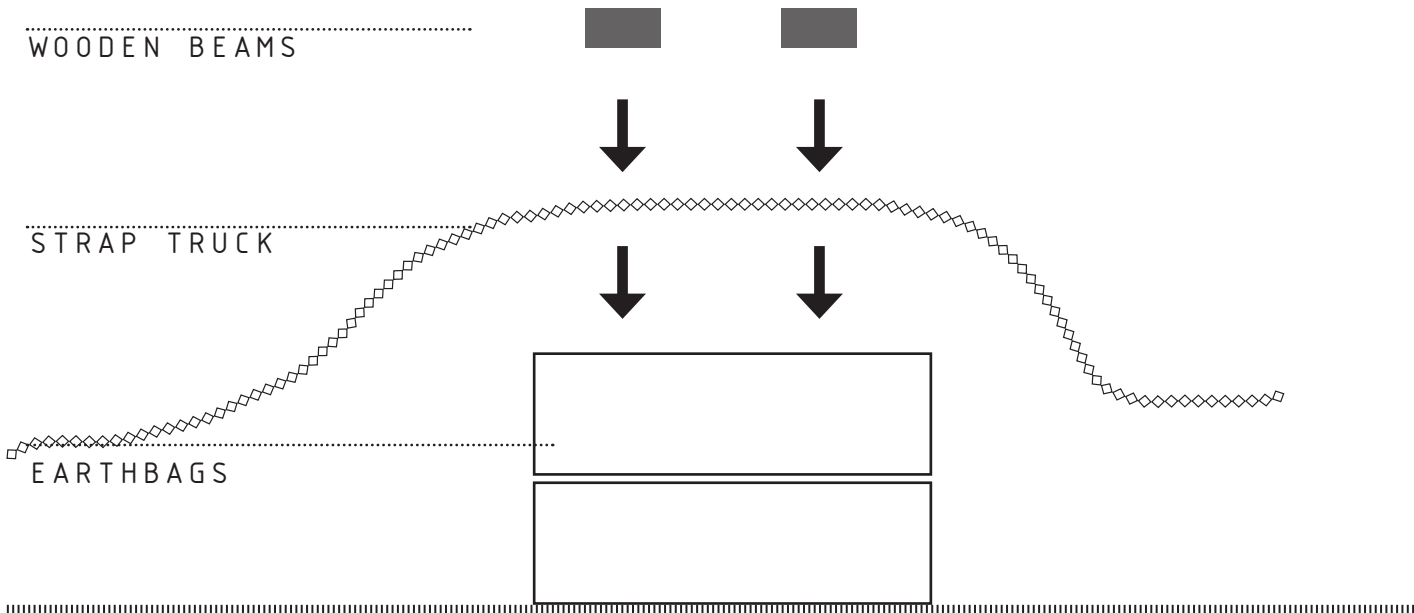
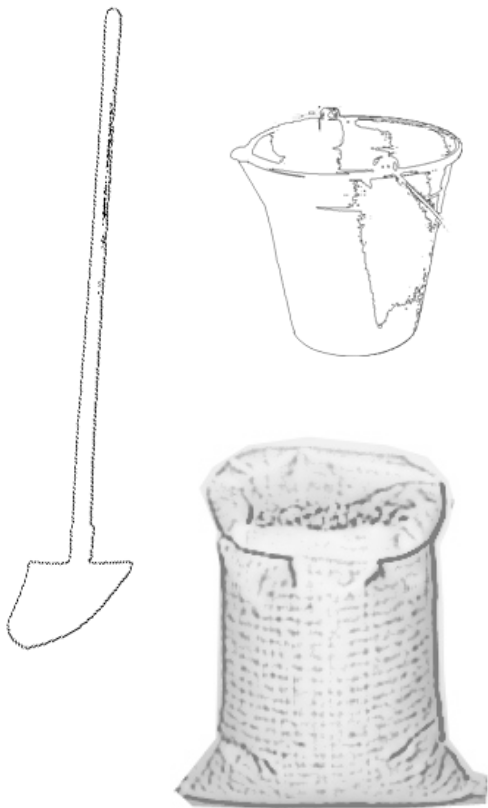
PRESS EVERY ROW OF BAGS  
WITH A  
FLAT SURFACE  
AFTER LAYING AND  
FILLING IT



# STRAW FIXING SYSTEM

JLS

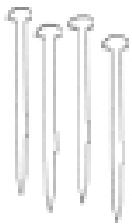
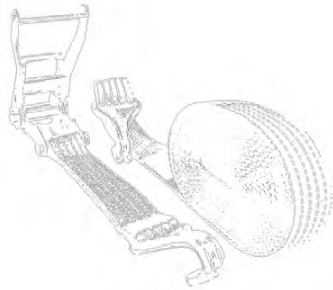
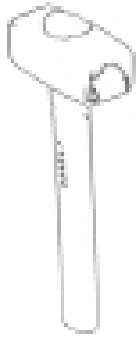
FIX THE STRAW BALES ON THE EARTHBAGS WITH STRAPS TRUCK AND A SYSTEM OF WOODEN BEAMS



# STRAW FIXING SYSTEM

3<sub>a</sub>

## TOOLS



THE TWO LINES OF  
WOODEN BEAMS CREATE  
A FLAT COMMON LEVEL

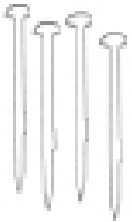
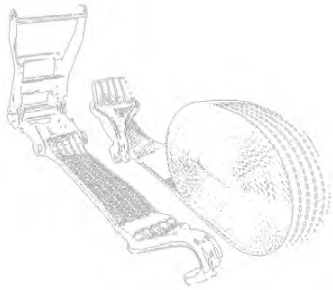
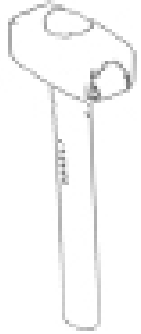


LINK THE BEAMS WITH METAL PLATES TO FORM A RIGID SYSTEM TO  
FIX THE STRAPS BELT AND CREATE THE BASEMENT FOR THE STRAW  
BALES

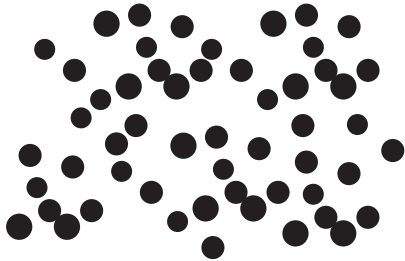


# STRAW FIXING SYSTEM

## TOOLS



EXPANDED  
CLAY



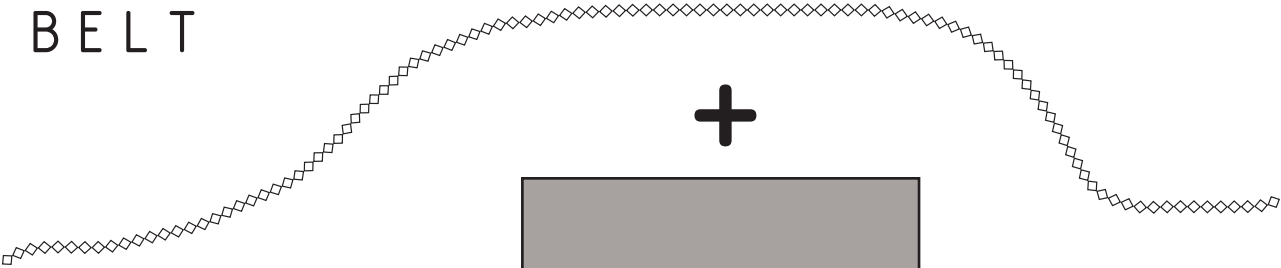
+

WOODEN BEAMS



+

STRAP BELT



+

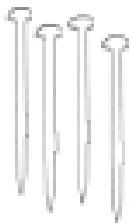
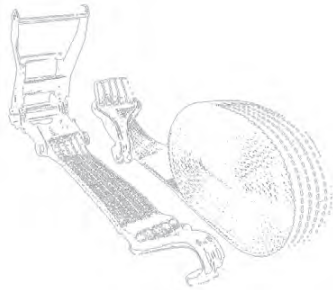
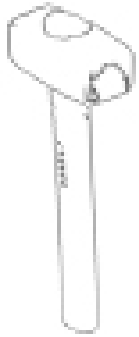
EARTHBAGS



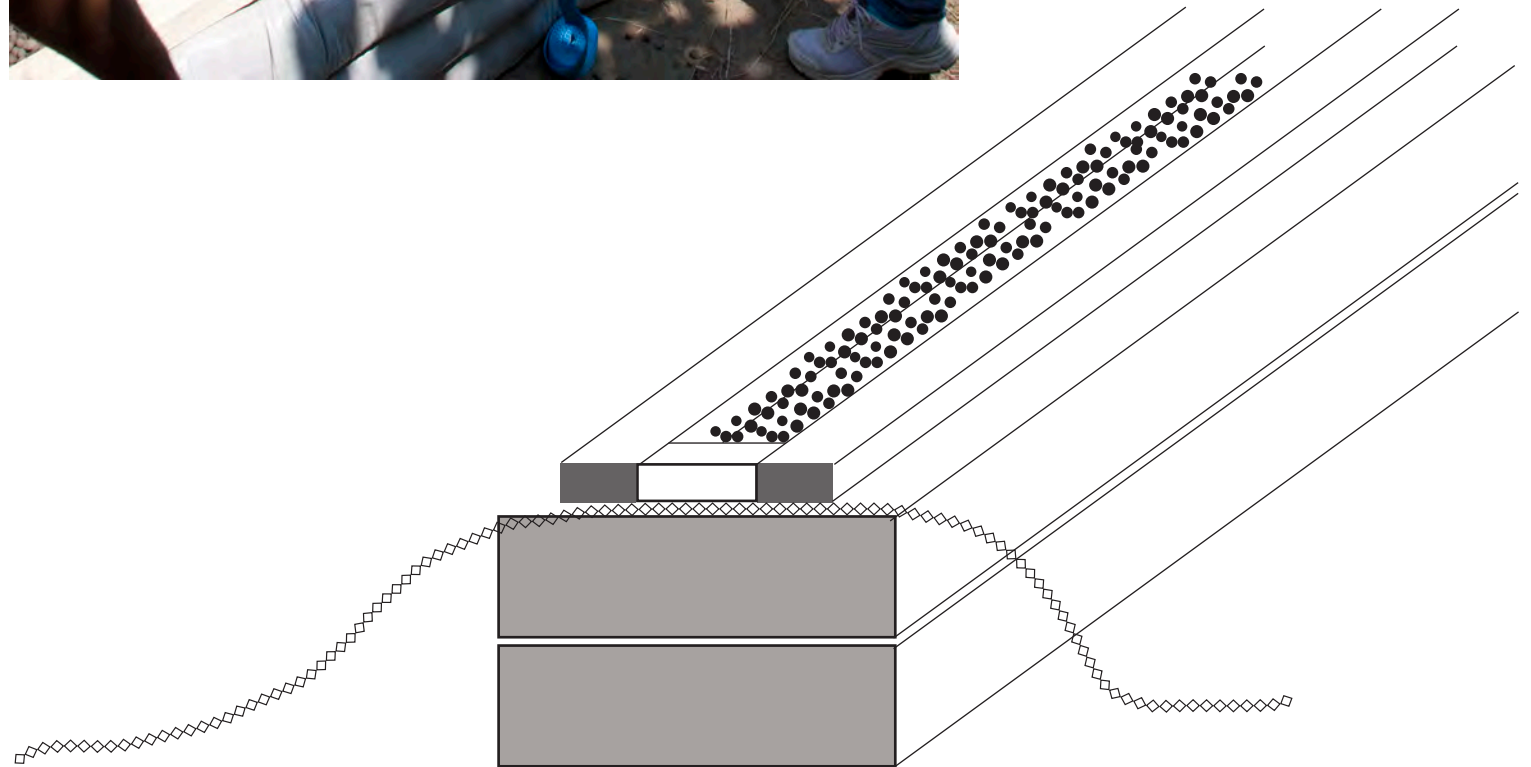
# STRAW FIXING SYSTEM

4 a

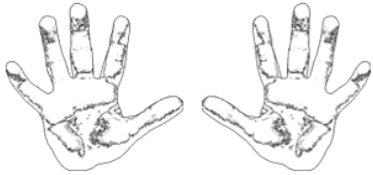
## TOOLS



THE EXPANDED  
CLAY AND THE  
WOODEN  
BEAMS BLOCK  
ALL THE POSSIBLE  
HUMIDITY



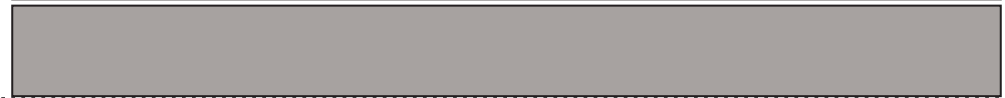
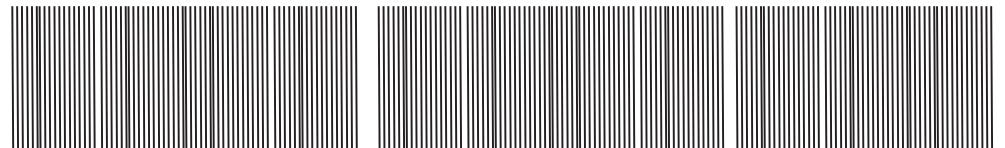
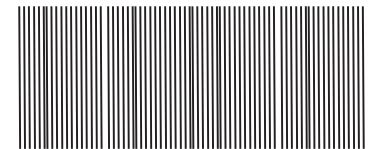
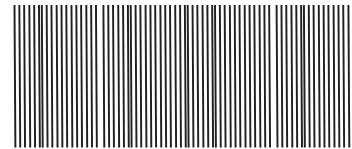
TOOLS



STAGGER THE STRAW  
BALES ONE  
AFTER THE  
OTHER

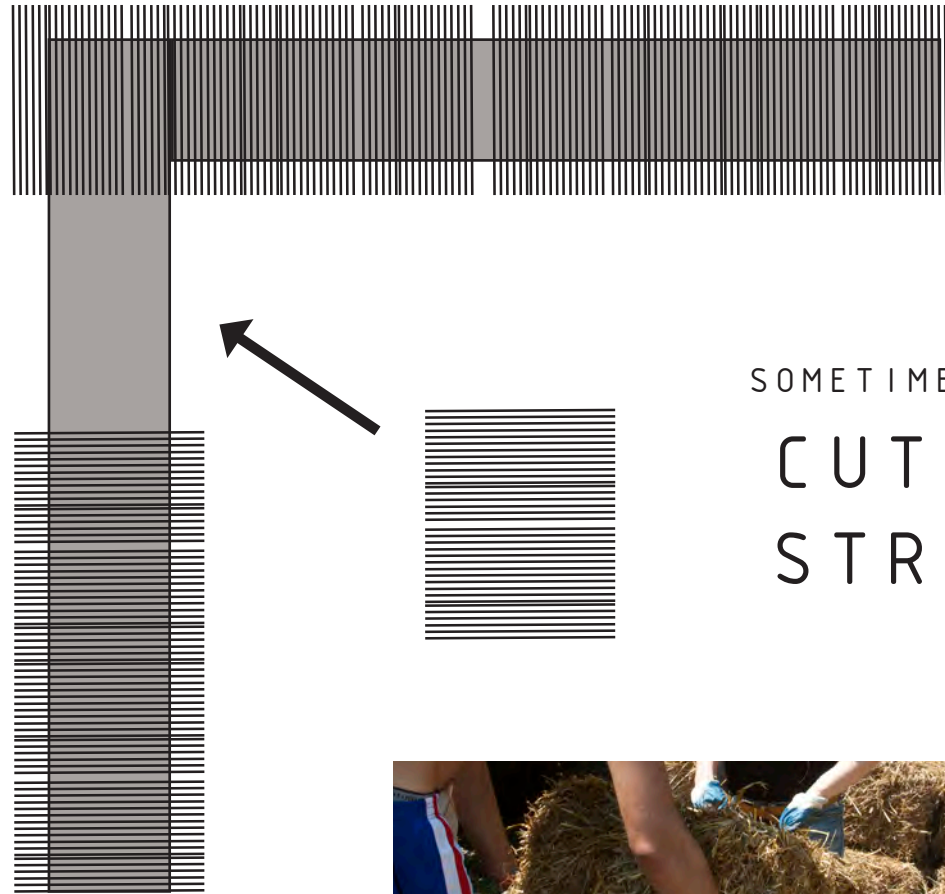
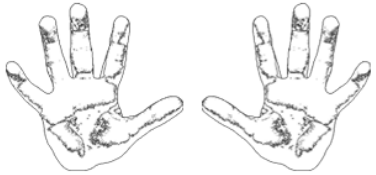


the center line of  
the bale goes above  
the junction point





TOOLS

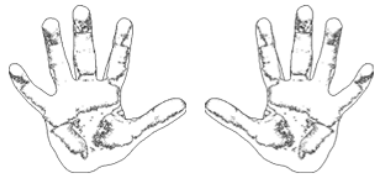


SOMETIMES YOU MAY NEED TO  
CUT SHORTER  
STRAW BALES

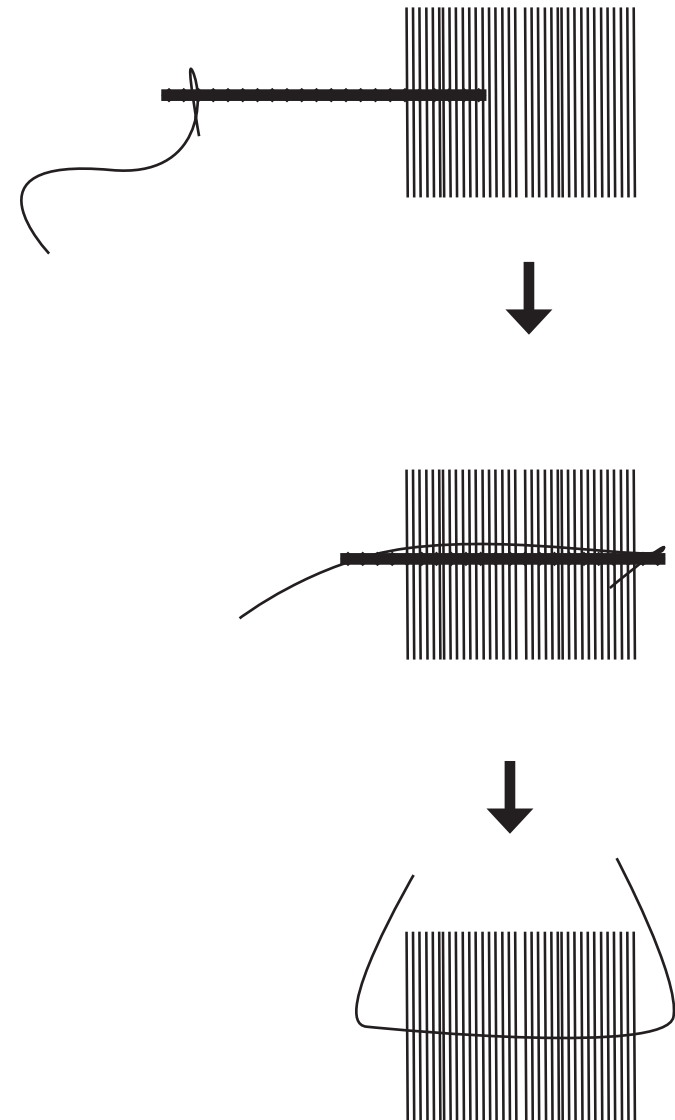


# THE SHORT BALE

## TOOLS



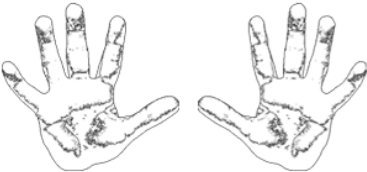
INTRODUCE A LONG  
NEEDLE WITH A NEW STRING



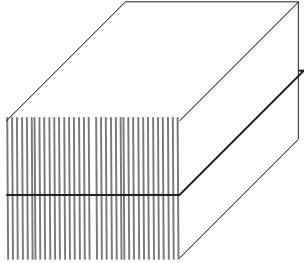
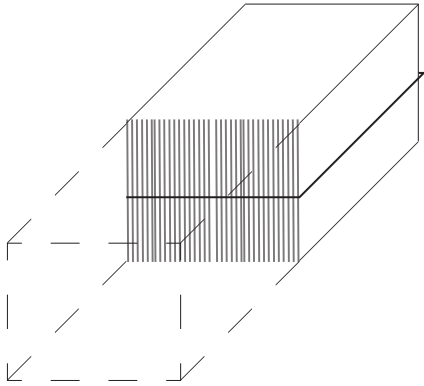
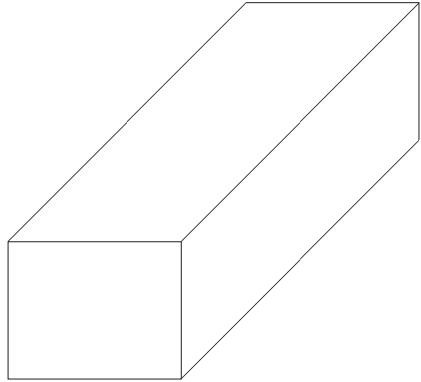
# THE SHORT BALE

6 a

## TOOLS



MAKE A NEW **KNOT** AND CUT THE OLD STRING TO OBTAIN TWO SHORTER STRAW BALES FROM ONE.

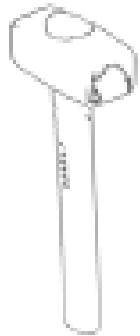
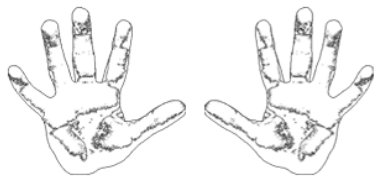


SOLVE THE CORNERS AND FINAL PART OF THE WALL WITH **HALF STRAW BALE**

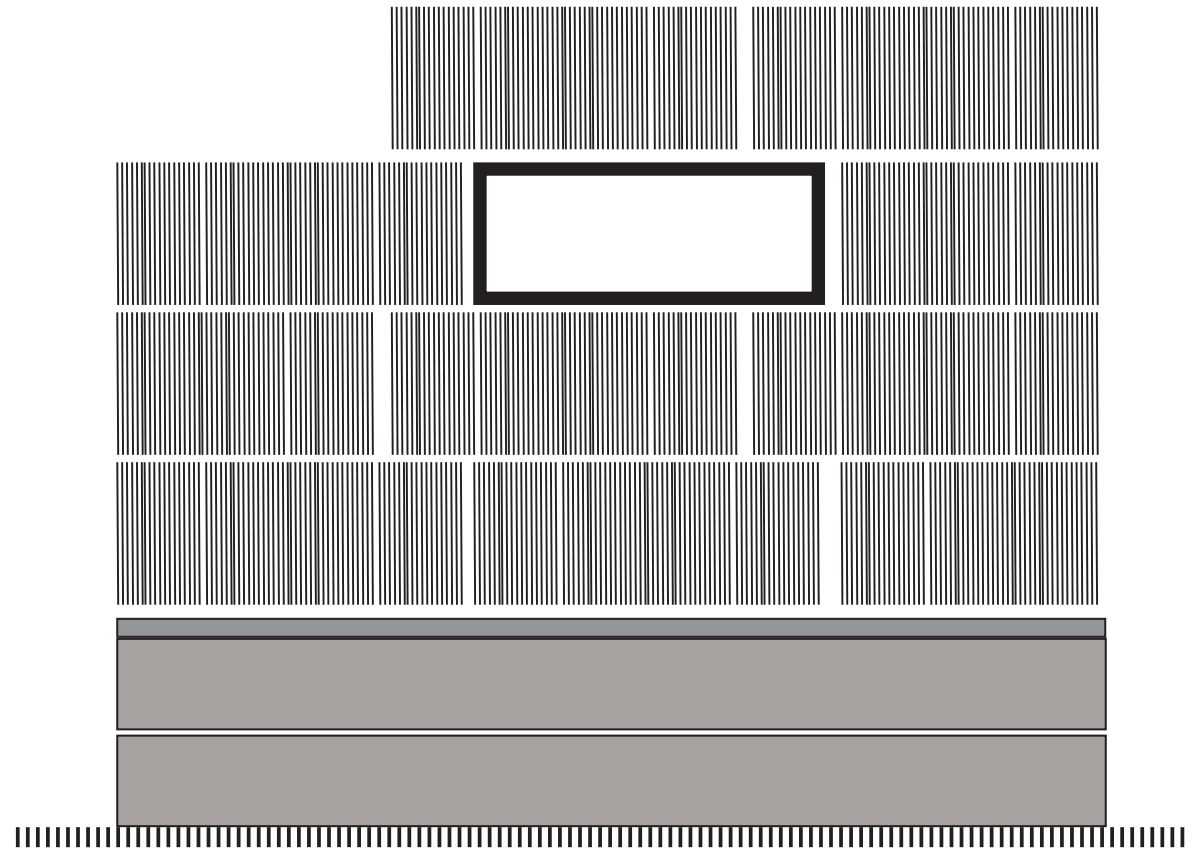
TOOLS



USE A **WOODEN FRAME** WITH THE SAME DIMENSION  
OF ONE OR MORE STRAW BALES TO OPEN A WINDOW INSIDE  
THE WALL



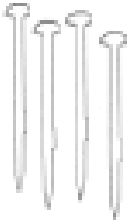
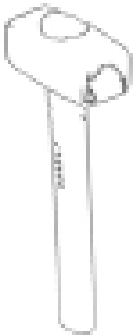
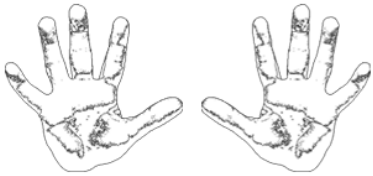
PUT THE WINDOW IN THE HOLE THAT REMAINS



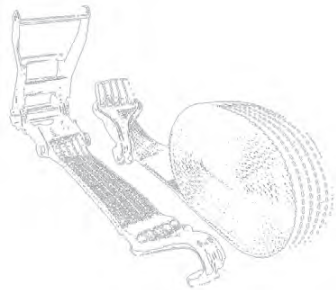
# WINDOW

7<sub>a</sub>

## TOOLS



## TOOLS



PUT A SECOND LAYER OF  
WOODEN BEAMS  
WITH EXPANDED  
CLAY

JOIN THE STRAP  
BELT TO

COMPRESS THE STRAW

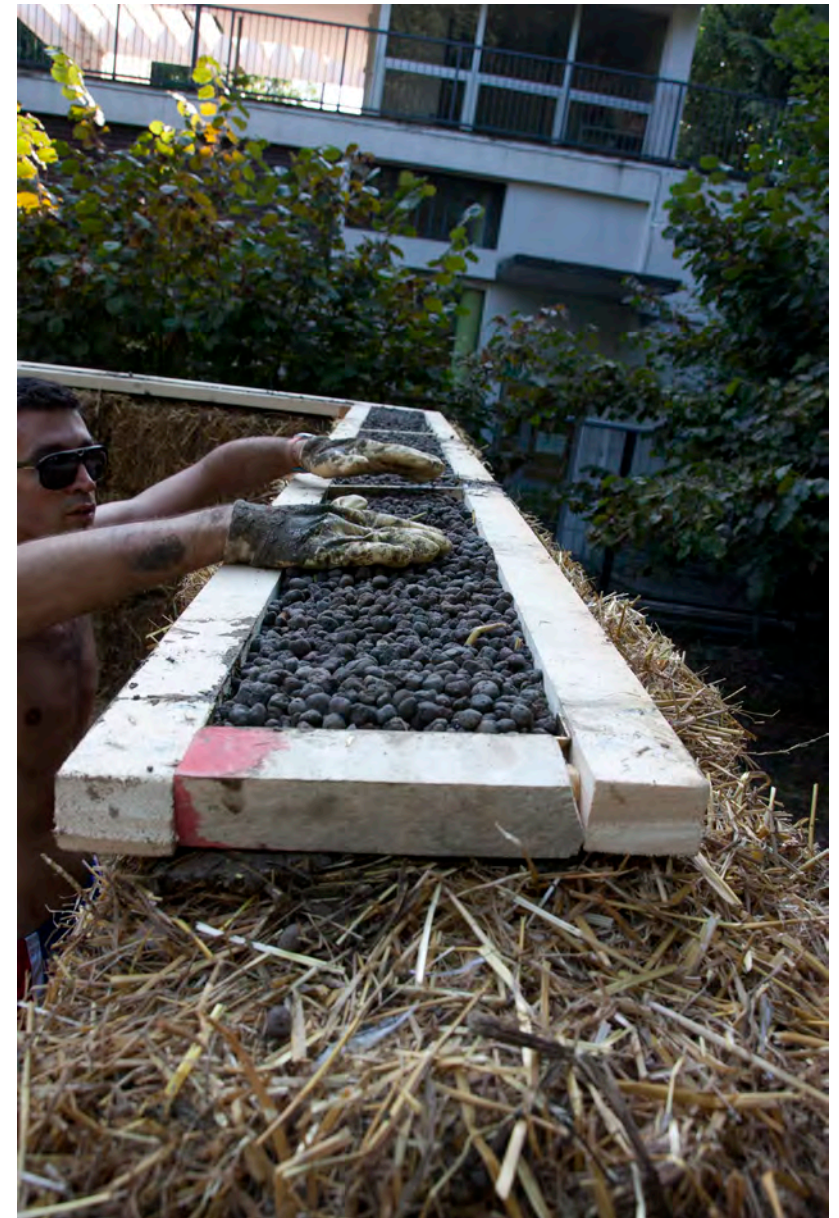
BALES WALL AND

CONNECT

THE TWO WOODEN FRAMES

AND PRESS UNTIL YOU

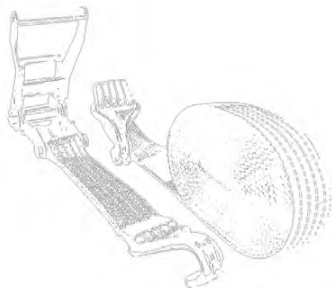
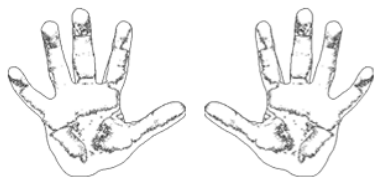
REACH A FLAT LEVEL



# FIX THE WALL

8<sub>a</sub>

## TOOLS

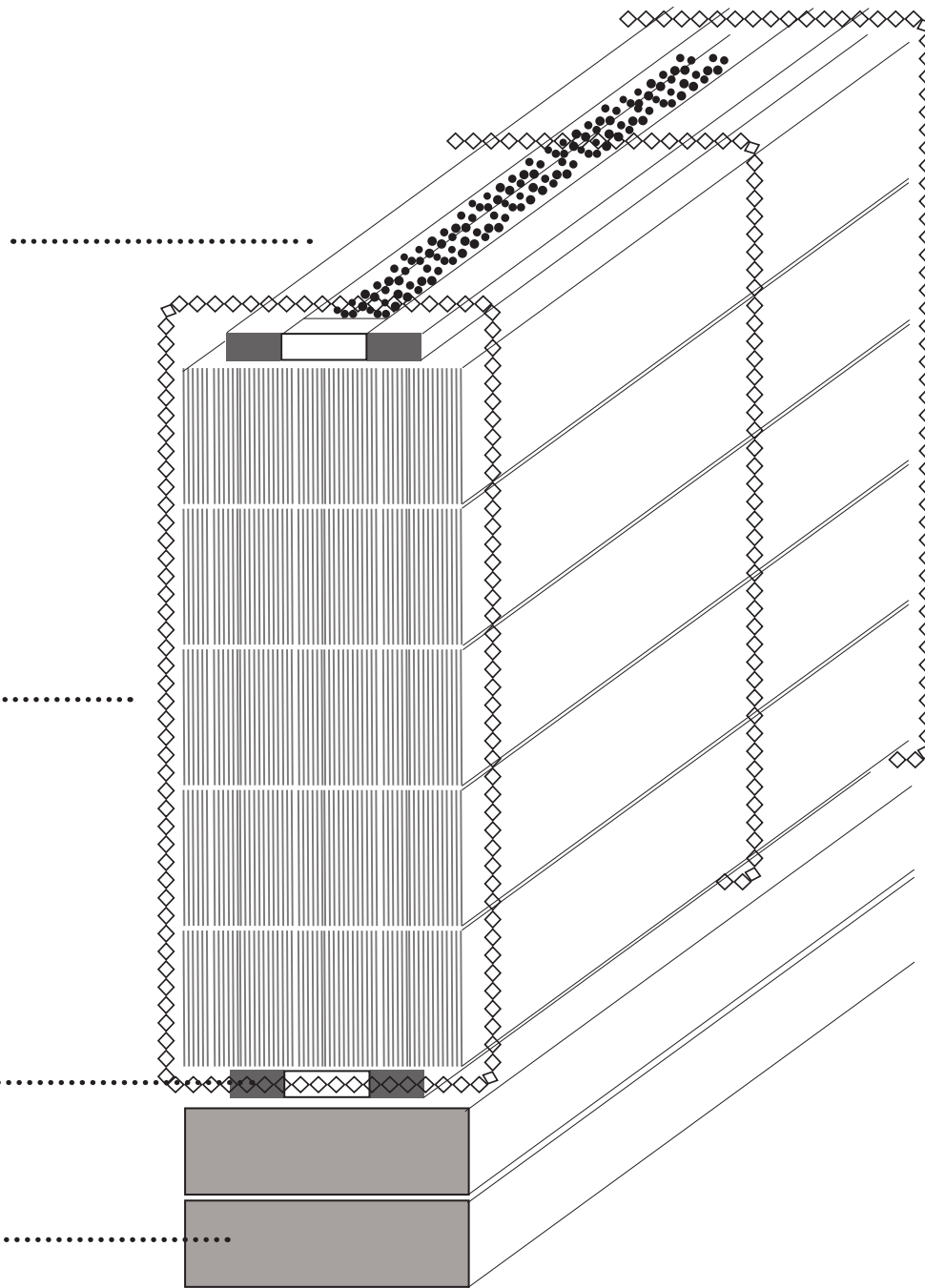


ABOVE WOODEN  
BEAMS

STRAP BELT

BELOW WOODEN  
BEAMS

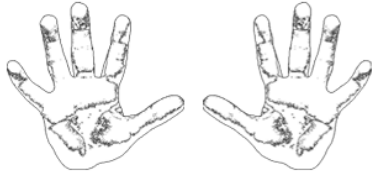
EARTHBAGS



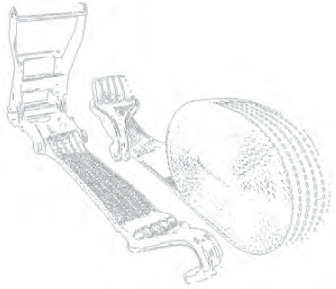
# FIX THE WALL

8<sub>b</sub>

## TOOLS



ABOVE  
WOODEN  
BEAMS



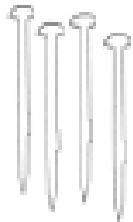
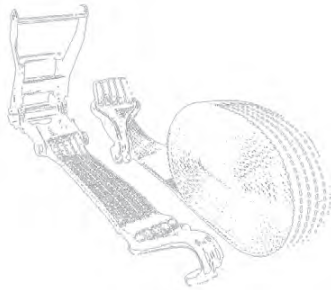
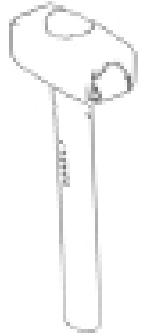
STRAP BELT

EARTHBAGS

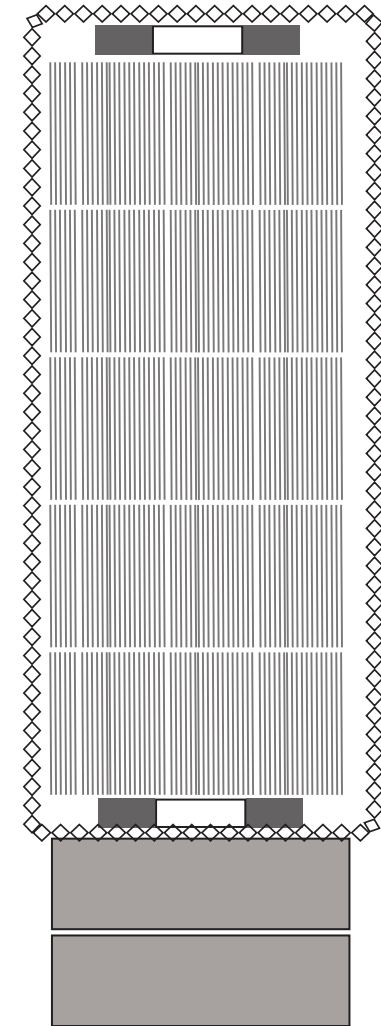




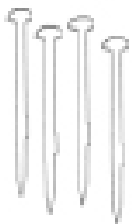
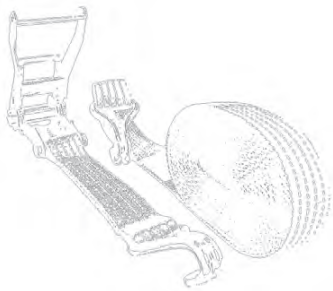
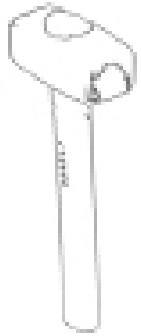
TOOLS



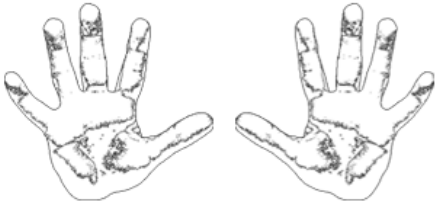
FIX THE BEAMS OF THE ROOF'S STRUCTURE  
DIRECTLY ON THE WOODEN BEAMS ABOVE THE  
STRAW BALES WALL



TOOLS



## TOOLS

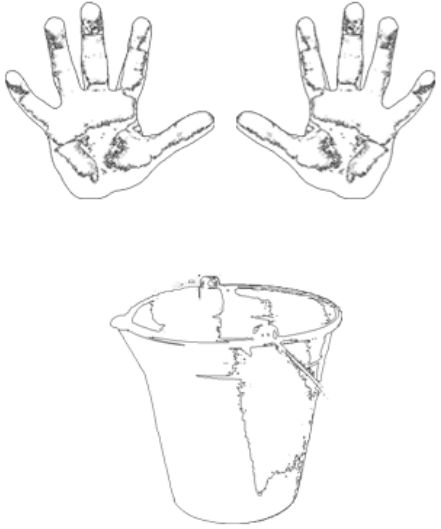


PLASTER THE WALL BY  
HANDS WITH MIXTURE OF  
CUT STRAW, SAND AND  
CLAY OR LIME

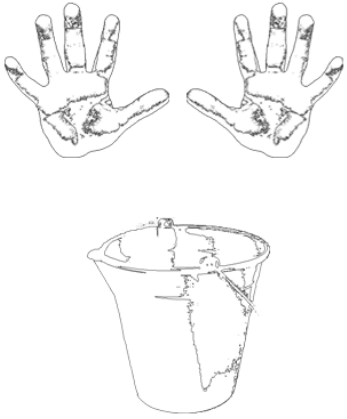


THE FIRST PLASTERING  
LAYER HAS MORE STRAW  
THAN THE OTHERS TO  
BETTER FULFILL THE  
POSSIBLE HOLES IN  
BETWEEN THE STRAW BALES

TOOLS



TOOLS



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graphic project by



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