



BUILDING HANDCRAFTED TABLE TENNIS TABLES



**PING SANS
FRONTIERES**



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MESSAGE FROM ITTF



ITTF is one of the most active sports worldwide in terms of development. This is reflected in the fact that ITTF has recently become the first International Sports Federation to have every country on earth as a member.

Ping Sans Frontières (PSF) was formed in 2006, with the original aim to assist developing francophone countries in Africa. They have now broadened their scope and in 2014 signed an agreement of understanding with ITTF, through our Development Program, with PSF coaches trained to lead ITTF Coach Accreditation and Development Program courses, and co-operation on multiple projects including this one “Building Handcrafted Table Tennis tables”.

One of the original mottos of the ITTF Development Program was “every table is a table tennis table”. This manual then takes it a step further providing opportunities to make tables locally, and to not only foster sports development but development through sport.

This manual is not intended to be the sole source of information on handcrafted tables, as there are already various models available throughout the world, which can hopefully be incorporated into future editions, so your feedback is appreciated.

Good luck with your building !

GLENN TEPPER
ITTF DEPUTY CEO

MESSAGE FROM PSF

— This manual is a result of group work by French architects. Therefore, it should be kept in mind, that all plans were based on French standards. The designs have been tested abroad and have easily been adapted to other standards by the various carpenters who have built the tables in their local environments.

It is necessary to consider both the environment and the climate in which the tables will be built. There are five different tables included within this manual which shows a detailed construction process is provided and detailed, with each table being designed to reach different goals. While some table designs are perfectly suitable for indoor and outdoor use, some are specifically created in order to develop educational programs, in an environmentally friendly spirit. Therefore, the choice of a design which is of course in line with the goals and constraints of the intended use, should be made in advance.

The prices included within the manual refer to the making of one single table, it is expected that building these tables in large quantities would help to reduce the cost per table.

All designs have been tested in practical situations through collaborative projects led in Algeria, Tahiti, Cameroon, South Africa, Kenya and France. These practical situations have enabled the designs to be improved, as well as testing and adapting to local constraints, and most importantly have met the needs of the local community in which the table will be used. The experiments in France and with the international partners also highlighted the importance of choosing the materials accordingly.

Even though different types of wood have already been used, the carpenters chose to use plywood (French standard : 1.9 cm). Not only is this type of wood light and resistant, but it also ensures a quality bounce of the ball during play. In this manual, centimeters have been chosen as the measurement unit.

For sustainability concerns, two of the tables included in this manual are provided with a concrete finish on the top of the table. The professional carpenters chose to use mix-mortar and cement. In order to avoid cracks and to guarantee more resistance, it is recommended to mix it with stones and crushed rocks. An extra layer of

cement will be added for homogenisation. The different options are detailed throughout the manual.

Furthermore, some of the designs are suitable for the practice of Para Table Tennis and meet the dimension standards set by the International Table Tennis Federation (40 cm from the end of the table to the table leg).

Following this manual will not only enable us to achieve new development goals, by financially involving the communities, but also to work with raw materials available within each country, and managed by local the community.

A vote of thanks goes to the ITTF and in particular Glenn TEPPER, ITTF deputy CEO, to Leandro OLVECH, ITTF Director – Development program for their contributions. Special thanks to our partners on the field but also the NA WORKSHOP, an association of architects, who worked to develop these modules ; and to all those who contributed to the production of this manual.

PING SANS FRONTIÈRES

CONCRETE TABLE

THIS MODEL USES CONCRETE AND HAS BEEN TESTED IN ALGERIA.

ADVANTAGES

- ♦ suitable for outdoor practice
- ♦ suitable for para table tennis
- ♦ built with recycled materials
- ♦ withstands any climatic conditions
- ♦ sustainable construction

THIS TABLE IS IDEAL
FOR **OUTDOOR**
AND **LONGTERM** USE

DISADVANTAGES

- ♦ can not be folded nor transported
- ♦ high cost
- ♦ applied technique more complicated

EQUIPMENT

- ♦ 12 bags of cement
- ♦ 12 bags black sand
- ♦ 4 x 12 mm diameter iron bars
- ♦ 8 x 8 mm diameter iron bars
- ♦ 10 kgs of coating
- ♦ 2 L of blue paint



TOOLS

- ♦ cement mixer
- ♦ sander
- ♦ ruler
- ♦ wire
- ♦ saw
- ♦ brush
- ♦ wire cutter
- ♦ level
- ♦ trowel

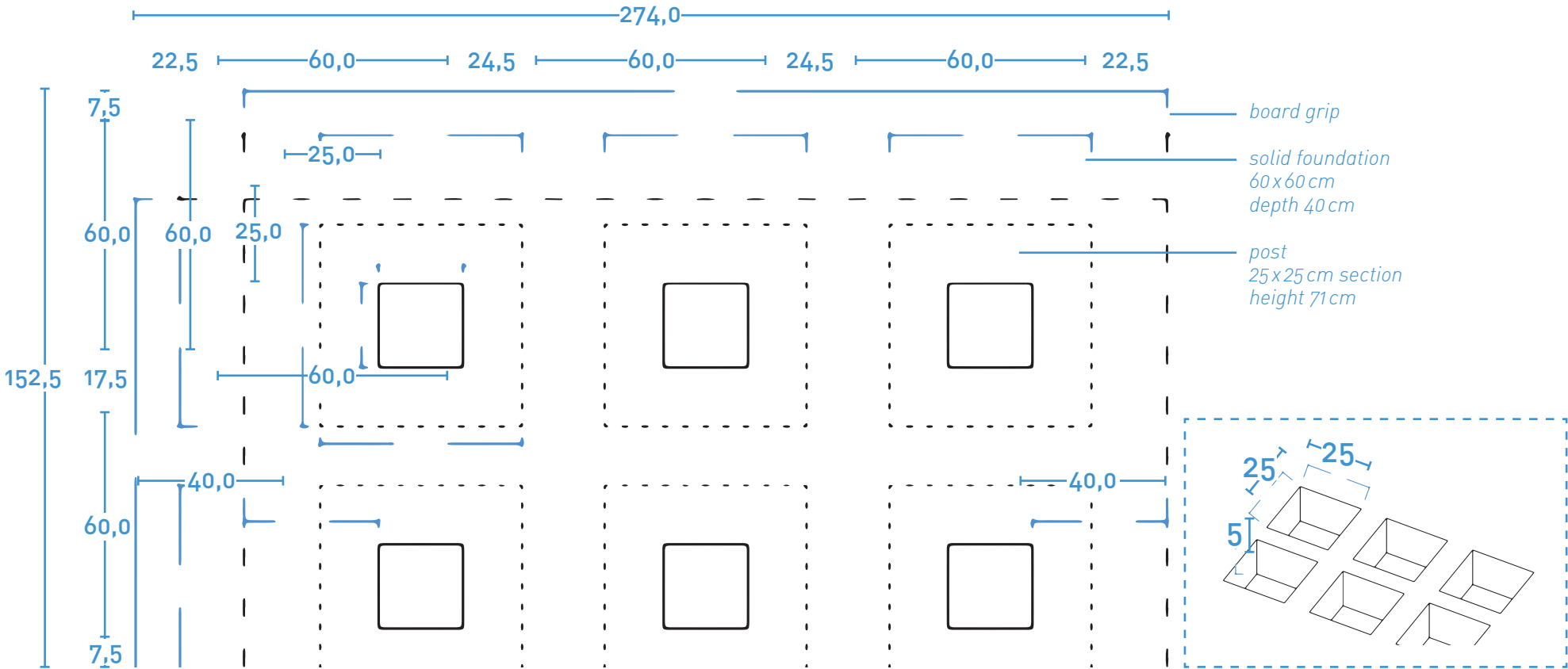
360 euros
including
labour

**Building
duration**
1 full week
including
3 days
for drying

CONCRETE TABLE

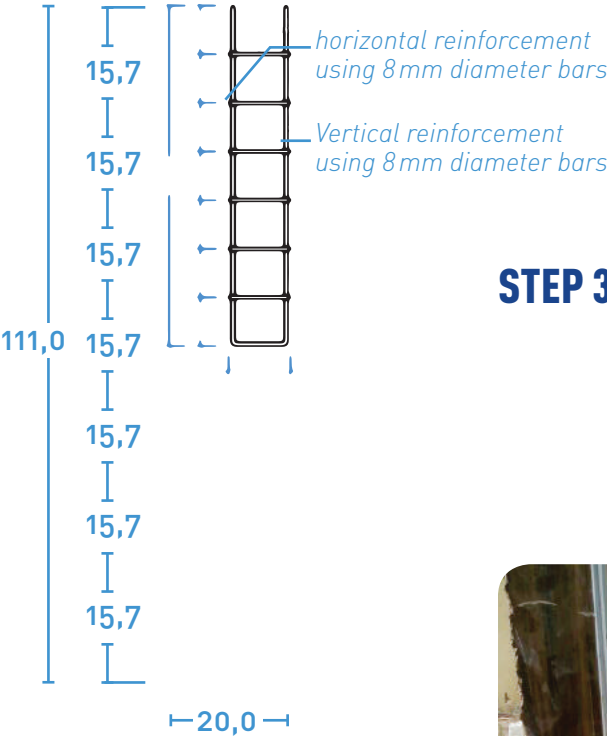
STEP 1

After choosing the location of the table
dig 6 holes of 60 cm×60 cm (40 cm depth)
in which the **legs** will be fixed.



STEP 2

Reinforce **the 6 stands**
by using the 8 mm diameter
iron bars.



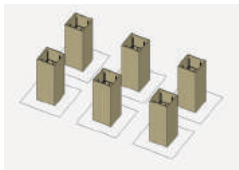
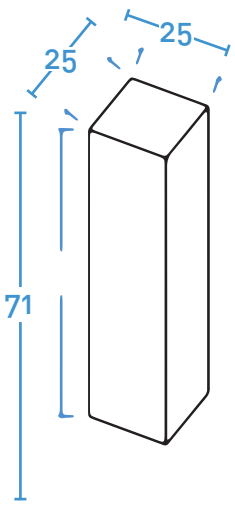
STEP 3

Fill the holes with cement while aligning
the stands **ensuring there is at least**
a 40 cm gap between the table top and
the legs to enable wheelchair play.



STEP 4

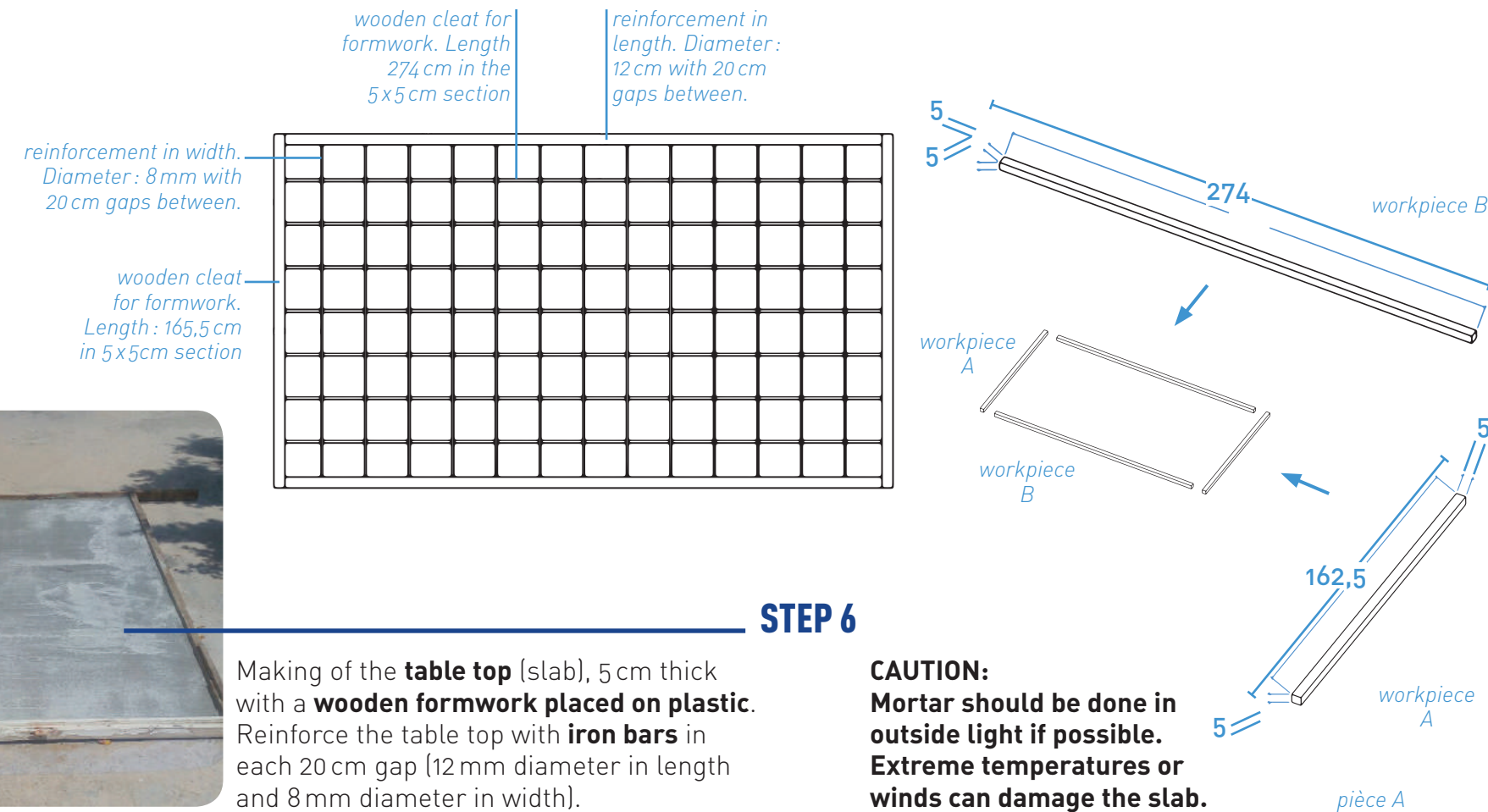
Create a formwork using
recycled wood and
pour the mixed cement.



CONCRETE TABLE

STEP 5

Minimum 2 days drying. It is necessary to pour water on the top and the legs every evening to prevent it from cracking. Do some small alterations and some light sanding.



STEP 6

Making of the **table top** (slab), 5 cm thick with a **wooden formwork placed on plastic**. Reinforce the table top with **iron bars** in each 20 cm gap (12 mm diameter in length and 8 mm diameter in width).

CAUTION: Mortar should be done in outside light if possible. Extreme temperatures or winds can damage the slab.

STEP 7

Assemble both parts after checking the level of legs and fix with cement or glue.



STEP 8

Sand all the elements and apply the coating. Apply 2 layers of paint on the table top.



STEP 9

Draw white lines: ITTF rules state 2 cm on the outside and 3 mm for the doubles line.



RECYCLED MATERIALS TABLE

THIS MODEL USES RECYCLED MATERIALS AND IS BASED ON PALLETS AND MORTAR.
IT HAS BEEN TESTED IN SOUTH AFRICA AND KENYA.

ADVANTAGES

- ♦ cheap price
- ♦ built with recycled materials
- ♦ sustainable construction

THIS TABLE BASED ON
RECYCLED MATERIAL
IS IDEAL FOR
OUTSIDE USE

DISADVANTAGES

- ♦ inappropriate for a para table tennis use
- ♦ untransportable
- ♦ untraceable palets in rural areas

EQUIPMENT

- ♦ **10** pallets of a EuroPAL type (High Temperature standard)
- ♦ welded mesh (± 2 x 1200 x 2400 mm)
- ♦ tarpaulin /oil cloth (4.5 m²)
- ♦ **200** x 60 mm screws
- ♦ **200** nails of 45 mm
- ♦ mortar bags (± **10** x 35 kg) + water
- ♦ colored paint (**2L**)
- ♦ net roll



TOOLS

- saber saw / jigsaw ♦ drill / srewdriver ♦ crowbar ♦ hammer ♦ carpenter's hammer ♦ bucket / gamate ♦ slice (x2) ♦ leveller ♦ paintbrushes ♦

175 euros in Capetown, 185 euros in Kenya
including labour

Building duration
1 to 2 days of building duration and minimum 5 days for drying

RECYCLED TABLE

EQUIPMENT

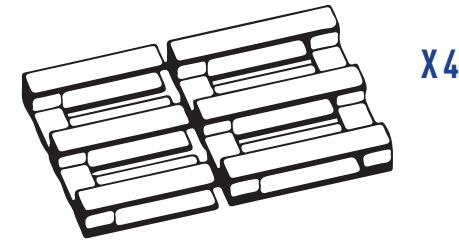
- ◆ 5 pallets
- ◆ 60 mm screws

TOOLS

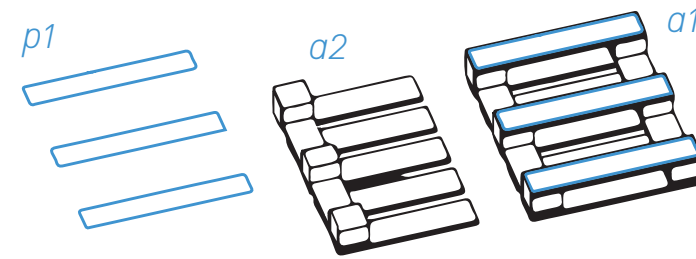
- ◆ sabersaw or jigsaw
- ◆ crowbar
- ◆ hammer
- ◆ carpenter's hammer
- ◆ leveller

STEP 1

Cut 4 pallets as shown in the diagram using a saw.
Ensure to keep the right part firm.



STEP 2



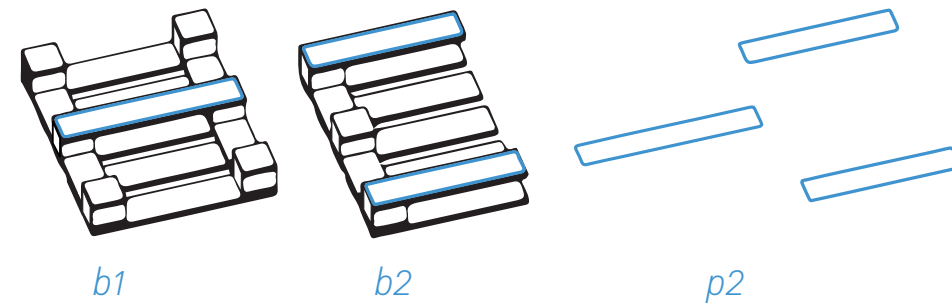
Out of the 4 cut pallets, **pick 2**. Dismantle the boards of the left part using a crowbar and a carpenter's hammer. Ensure to **keep all the parts firm**.

We have: 2x *p1*
2x *a1*
2x *a2*

STEP 3

Take the other 2 remaining parts. Dismantle the center boards of the parts on the left using a carpenter's hammer. **Cut the boards** using the saw as shown herewith.

We have: 2x *p2*
2x *b1*
2x *b2*



STEP 4

Using a *b1* and a *b2*

Join both parts using a screwdriver and screws as shown in the diagram. Redo the process to make a second piece.

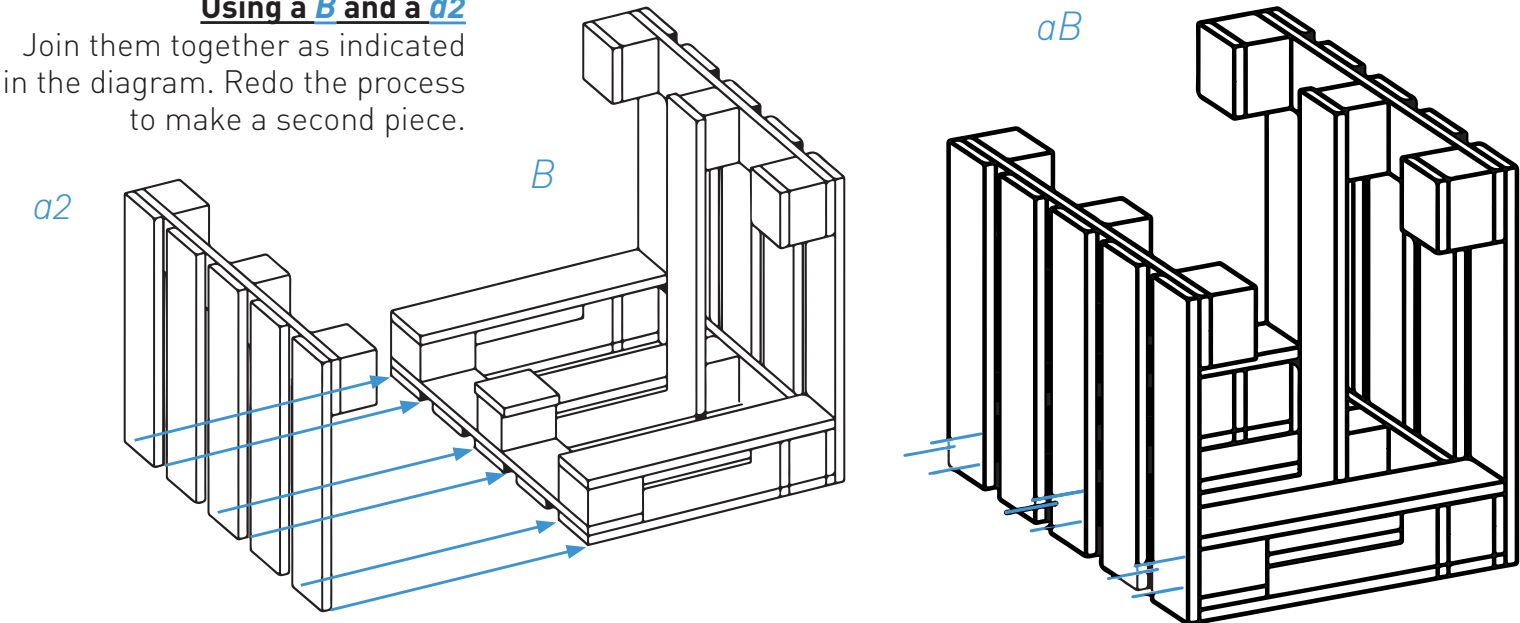


We have: 2x *B*

STEP 5

Using a *B* and a *a2*

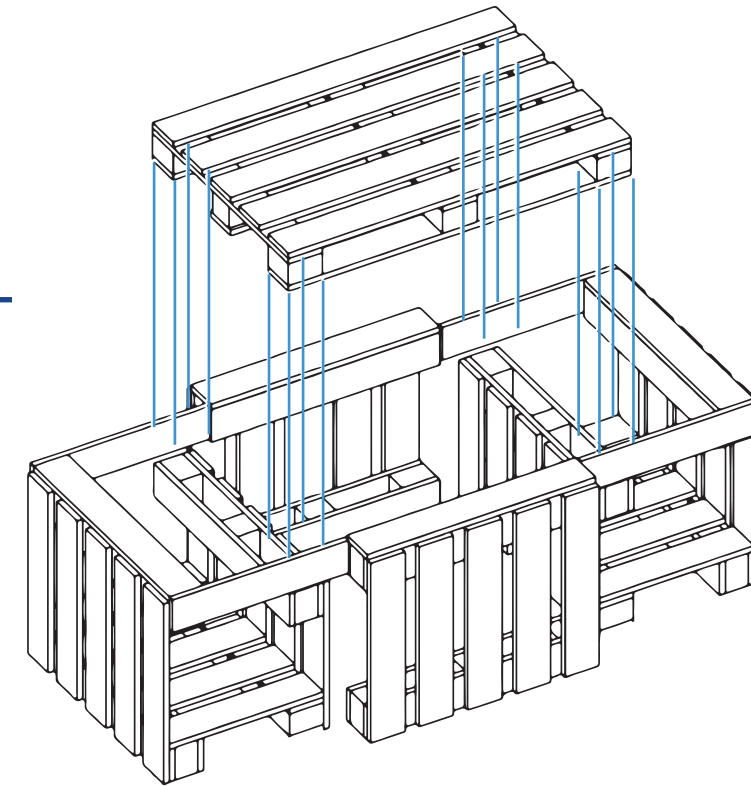
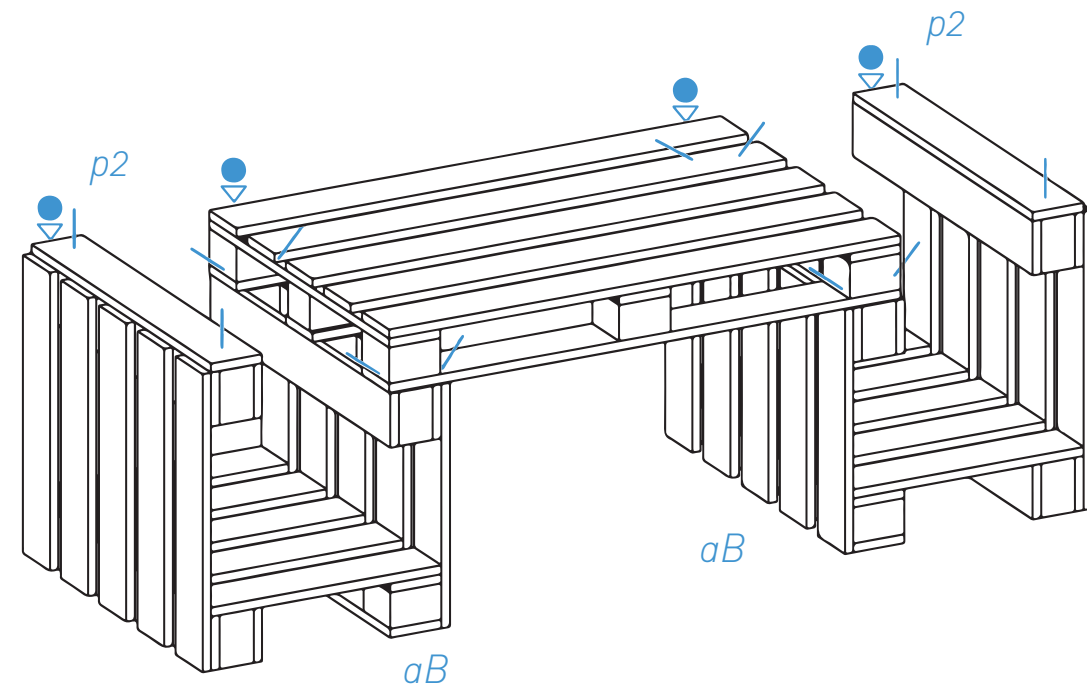
Join them together as indicated in the diagram. Redo the process to make a second piece.



RECYCLED TABLE

STEP 6.1

Put out the **aB** as shown here and place the 5th pallet. Check the level and if necessary add 2 boards of **p2** to compensate height. If necessary, use screws to attach them.



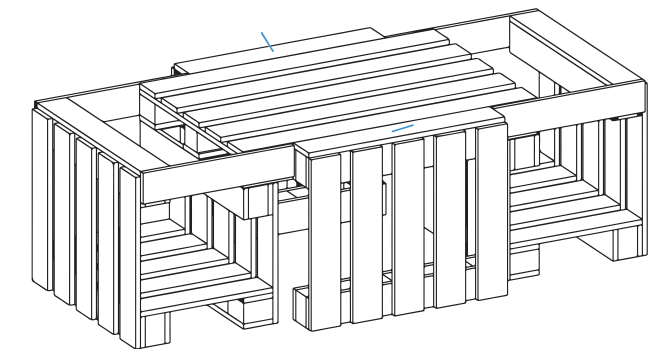
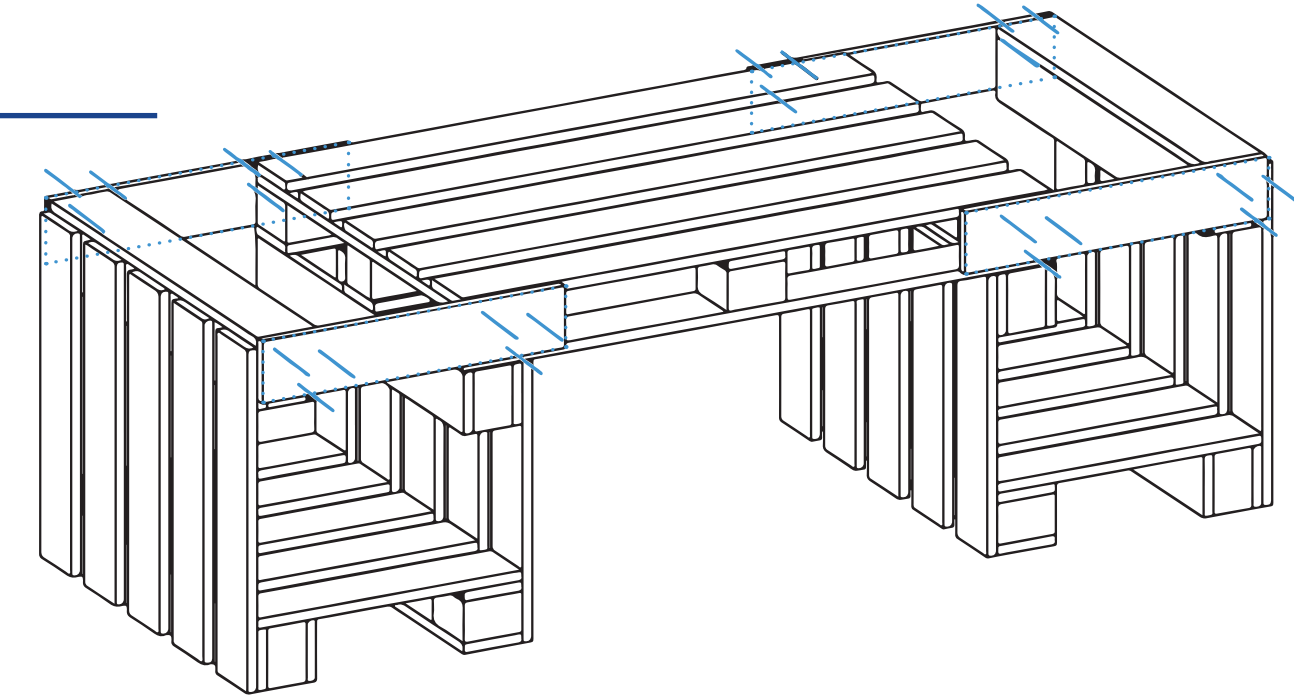
STEP 6.2

Fix the pallet to **aB** using screws and a screwdriver



STEP 7

Take 2 boards **p2** and put them up as shown in the diagram. Fix them using screws and a screwdriver.



STEP 8

Put out both **a1** one on one side and the other vertically. Check the height and if necessary add a board of **p2** in order to correct the flatness. Fix them using screws and a screwdriver as shown in the diagram.

RECYCLED TABLE

EQUIPMENT

- ◆ 5 pallets
- ◆ 60 mm screws
- ◆ nails of 45 mm

TOOLS

- ◆ sabersaw or jigsaw
- ◆ drill / screwdriver
- ◆ crowbar
- ◆ hammer
- ◆ carpenter's hammer
- ◆ leveller

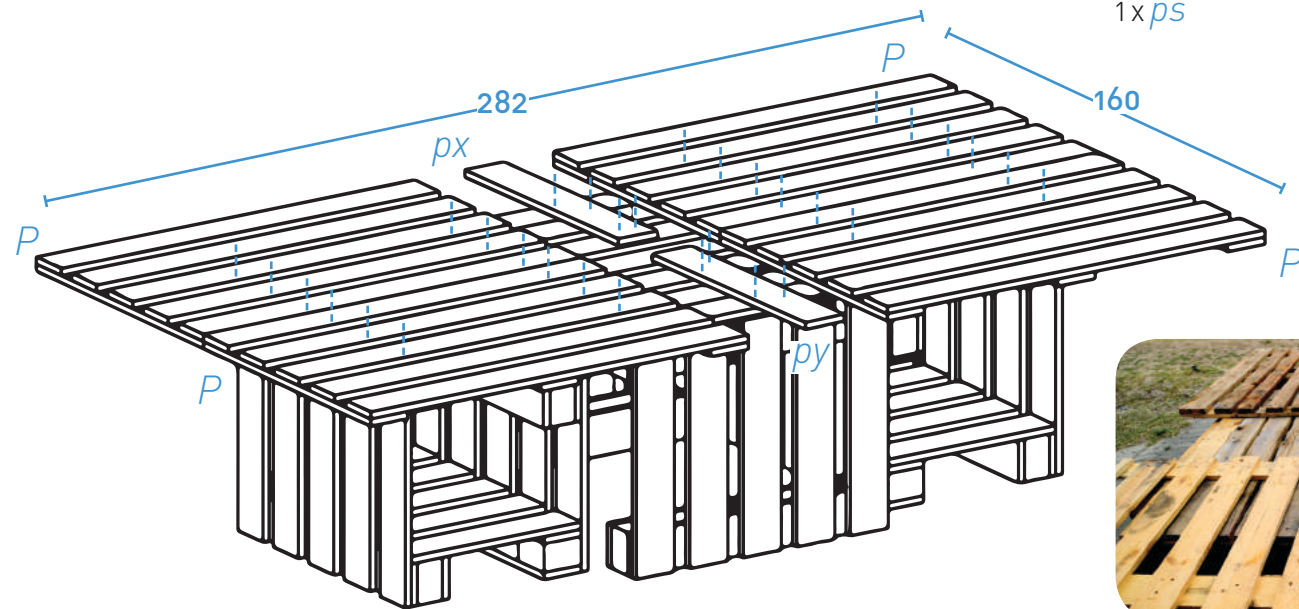
BUILDING
OF A WOODEN
PLATE

STEP 9

Using the crowbar and the carpenter's hammer, **dismantle 4 pallets** as shown in the diagram. **Keep the boards obtained from the lower part (*p*) and the parts of the upper part (*P*).**

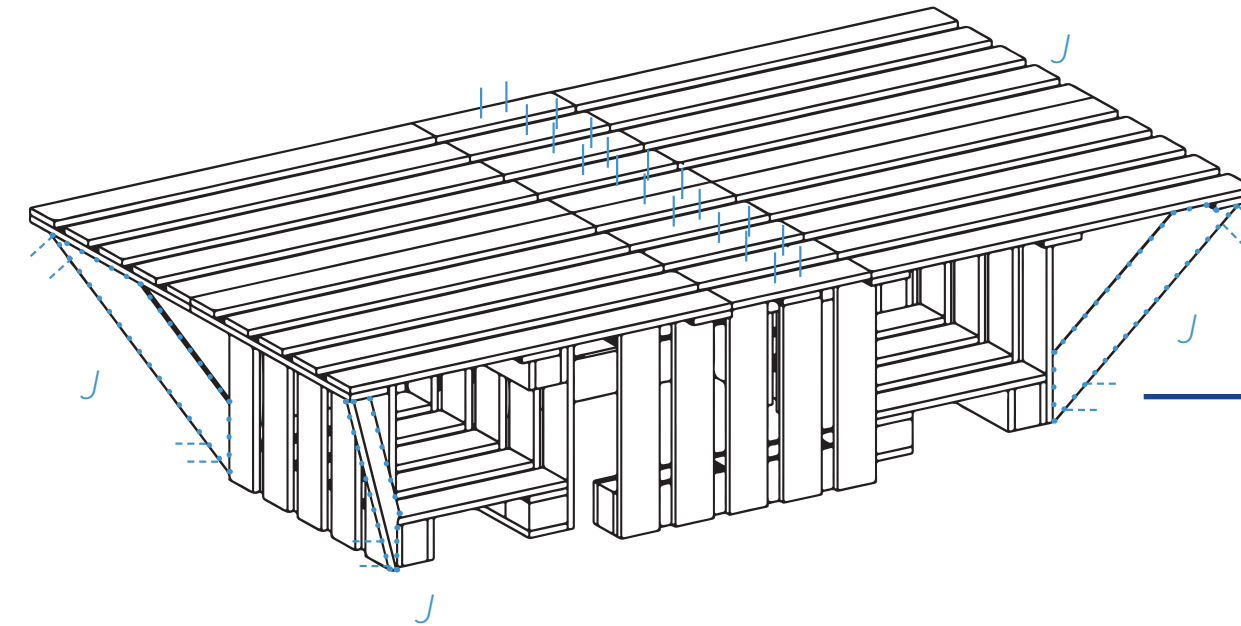
Fully dismantle the remaining pallet in order to get the boards (*ps*).

We have: 4 x *P*
4 x *p*
1 x *ps*



STEP 10

Fix the 4 *P* to the stands using screws and a screwdriver. **Take 2 strong boards (*px* and *py*) from *p* and fix them** as shown here using screws and a screwdriver.

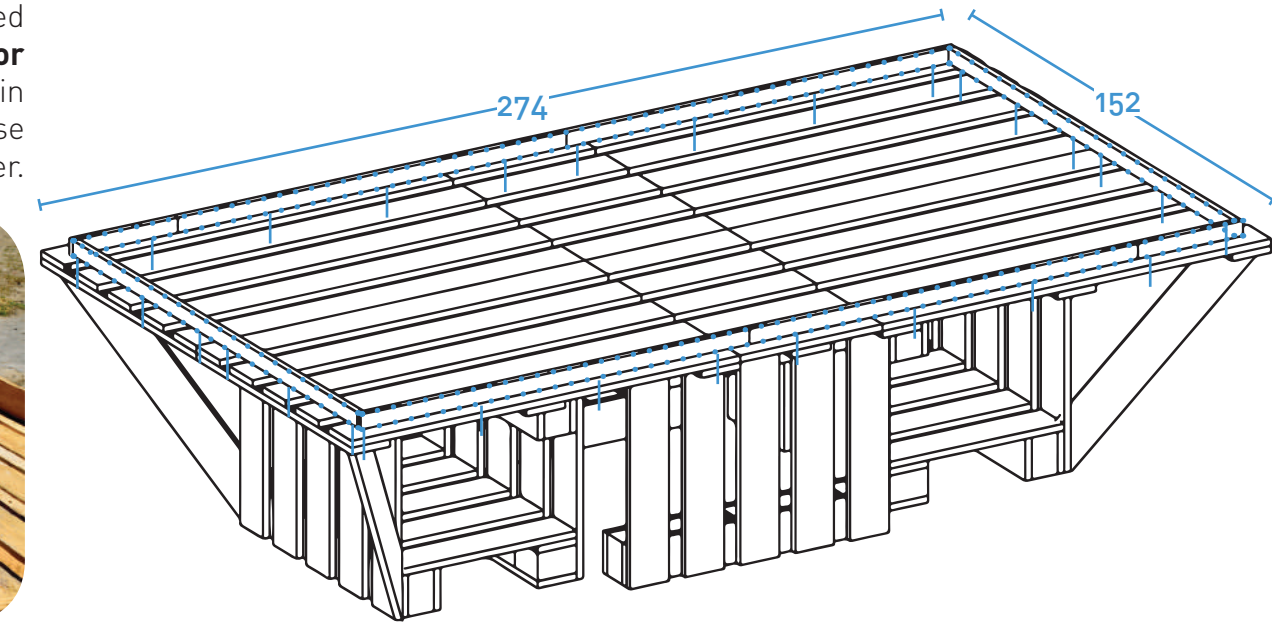


STEP 11

Take 4 strong boards from *p* and build the support legs *J*. Use screws and a screwdriver. Within *p1*, *p2*, *p* and *ps*, **cover the gaps** between the boards of the wood in order to have a surface with **less holes**. **Attach the boards** using nails.

STEP 12

From *p*, **forge the edges**. The indicated **dimensions shown here refer to the interior parts of the edges**. Place the boards within them using screws and a screwdriver. These boards shall be removed later.



RECYCLED TABLE

EQUIPMENT

- ♦ welded mesh
(± 2 x 1200 x 2400 mm)
- ♦ tarpaulin / oil cloth (4,5 m²)
- ♦ mortar bags
(± 10 x 35 kg) + water

MORTAR
SCREED

TOOLS

- ♦ drill / screwdriver
- ♦ a carpenter's hammer
- ♦ slice (x 2)
- ♦ a bucket / gamate
- ♦ a leveller

STEP 13

Put the **tarpaulin or oil cloth underneath** the formwork and **secure it** using nails and a hammer. **Remove the welded mesh** by folding it slightly so that it is not just placed on the formwork. It can also be raised by nails or small stones.



CAUTION: it must not be raised beyond 3 cm from the basement of the formwork.



STEP 14

Prepare the mortar in the gamate or a bucket by following the proportions indicated on the bag. **Form the mortar in the formwork** by **tapping** with a hammer **under** the surface of the table in order to shake and avoid air bubbles. There should be a **minimum of 4 cm slab**. Smoothen and carefully check levels.

CAUTION: Mortar should be done in outside light if possible. Extreme temperatures or winds can damage the slab. If there is no shadow, cover the slab with a tarp during the drying.



STEP 15

After **48 hours** (5 days preferred period), **remove the formwork** by removing the formwork screw and then remove the lateral boards.

CAUTION: The edges can be fragile in case of a quick stripping.

FINISHES

EQUIPMENT

- ♦ colored paint (2 L)
- ♦ net

TOOLS

- ♦ paintbrushes

STEP 16

At this point, it is possible to **paint the lateral sides and/or the surface of the slab**. Similarly, **the wooden overhang, the stands and the legs of the table can be painted**. In the model presented in the picture, we painted in blue both the lateral sides of the slab and the wooden overflow on the ground. **Fix the net.**



WOODEN TABLE ON TRESTLES

THIS MODEL HAS BEEN CONCEPTUALISED IN FRANCE, AND TESTED FOR THE FIRST TIME IN CAMEROON.

ADVANTAGES

- ♦ relatively cheap table
- ♦ quick construction process
- ♦ suitable for para table tennis
- ♦ does not require specific skills
- ♦ transportable

EQUIPMENT

- ♦ 2 boards of 131 x 146 x 2 cm
- ♦ 8 cleats of 290 x 3 x 2 cm
- ♦ 22 cleats of 260 x 4 x 3 cm
- ♦ 8 steel hooks of 20 mm
- ♦ 4 x 3 cm steel chain of 3 mm
- ♦ 100 screws of 50 mm
- ♦ 4 x 10 cm threaded shaft of 5 mm
- ♦ 200 mL of wood glue
- ♦ paint
- ♦ net



THIS TABLE IS SUITABLE
FOR **INDOOR USE**

DISADVANTAGES

designed for indoor use ♦

TOOLS

- circular saw ♦
- metal saw ♦
- adjustable / wrench ♦
- sanding / machine ♦
- hammer ♦
- drill ♦
- level ♦
- meter ♦
- brush ♦

**360 euros
in France,
110 euros
in Cameroun**
labour
included

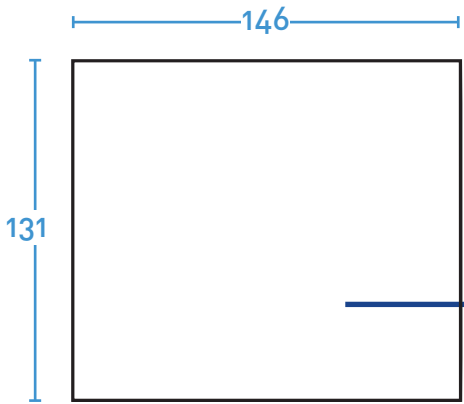
**Building
duration**
2 days
maximum

WOODEN TABLE ON TRESTLES

EQUIPMENT

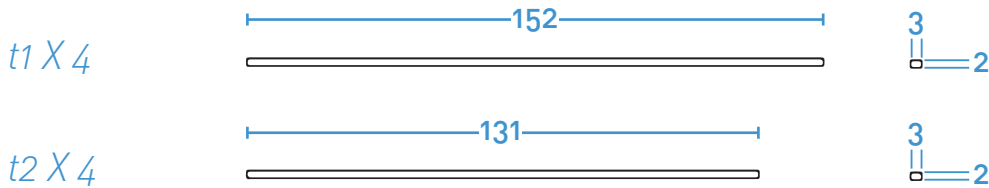
◆ 2 boards
of 131 x 146 x 2 cm

1
CUT THE
PIECES FROM
THE BOARD



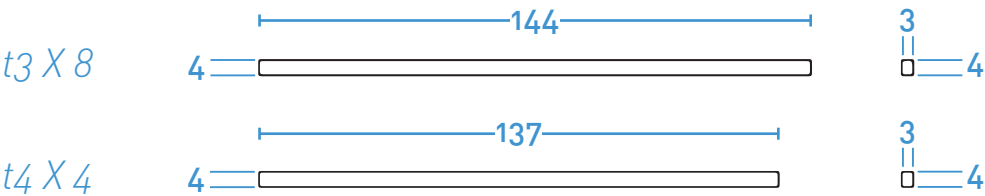
STEP 1

Cut two wooden boards
131 x 146 x 2 cm.



STEP 2

Cut out 4 cross pieces *t1* and 4 cross pieces *t2*.



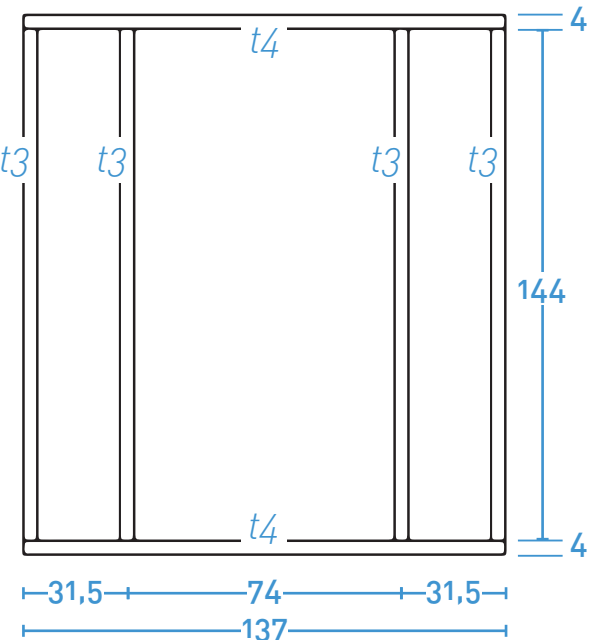
STEP 3

Cut out 8 cross pieces *t3* and 4 cross pieces *t4*.

2
PLATE
ASSEMBLY

STEP 4

Using screws, **fasten the 2 crosspieces** *t4* according to the indicated sides. Using screws, **fix**. On the plate, **the 4 *t3* ties** according to the indicated sides. Repeat the operation a second time on the second tray.



WOODEN TABLE ON TRESTLES

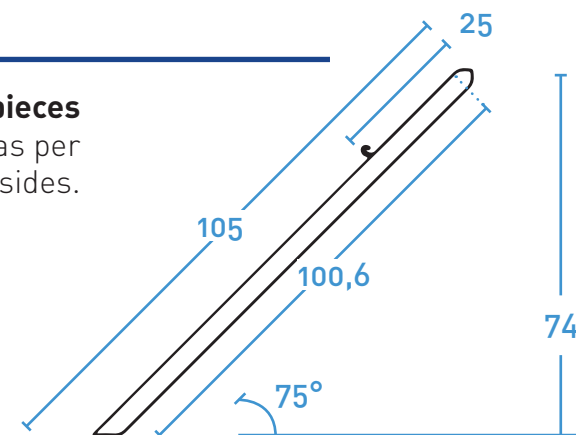
EQUIPMENT

- ◆ 8 pieces of 105 x 4 x 3 cm
- ◆ 8 pieces of 110 x 4 x 3 cm
- ◆ 8 large central screws
- ◆ 32 screws to fix the bars between the two crosses

3 CUT OUT THE PIECES OF TRESTLES

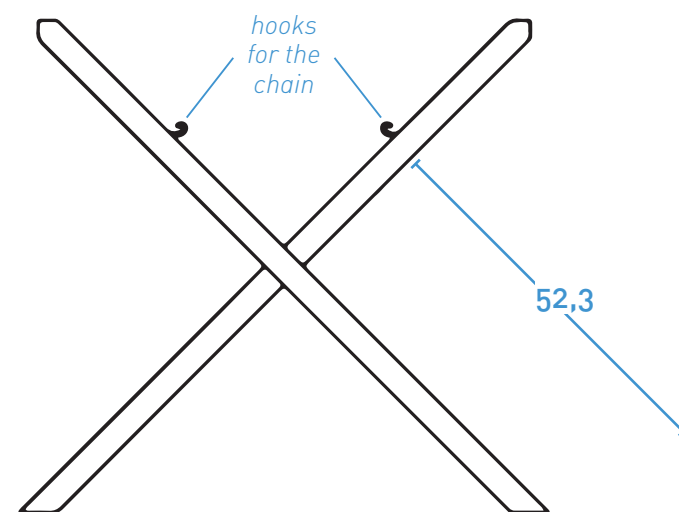
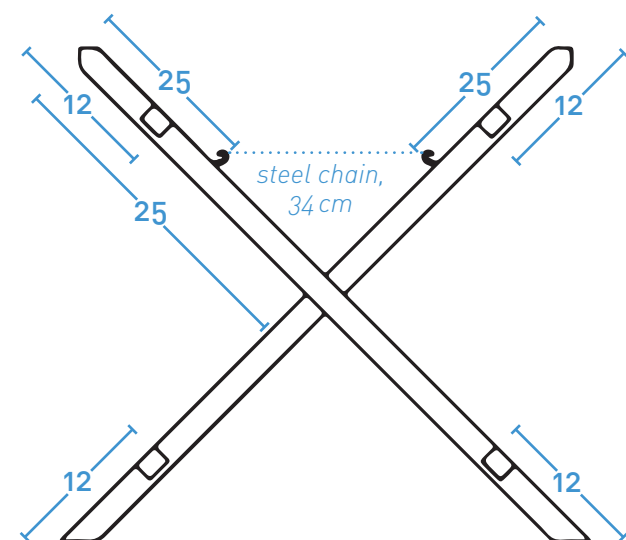
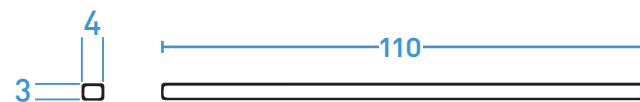
STEP 5

Cut out the 8 pieces of 105 x 4 x 3 cm as per the indicated sides.



STEP 6

Cut out 8 pieces of trestles of 110 x 4 x 3 cm, as per the indicated sides.

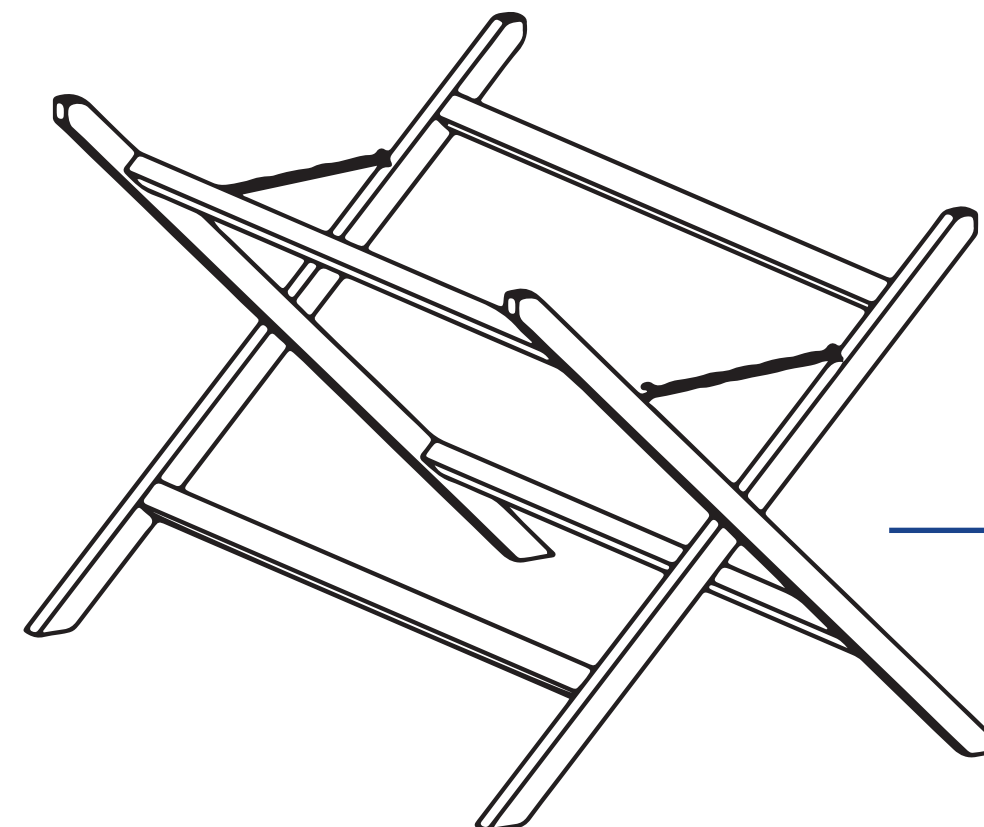


4 ASSEMBLE THE PIECES



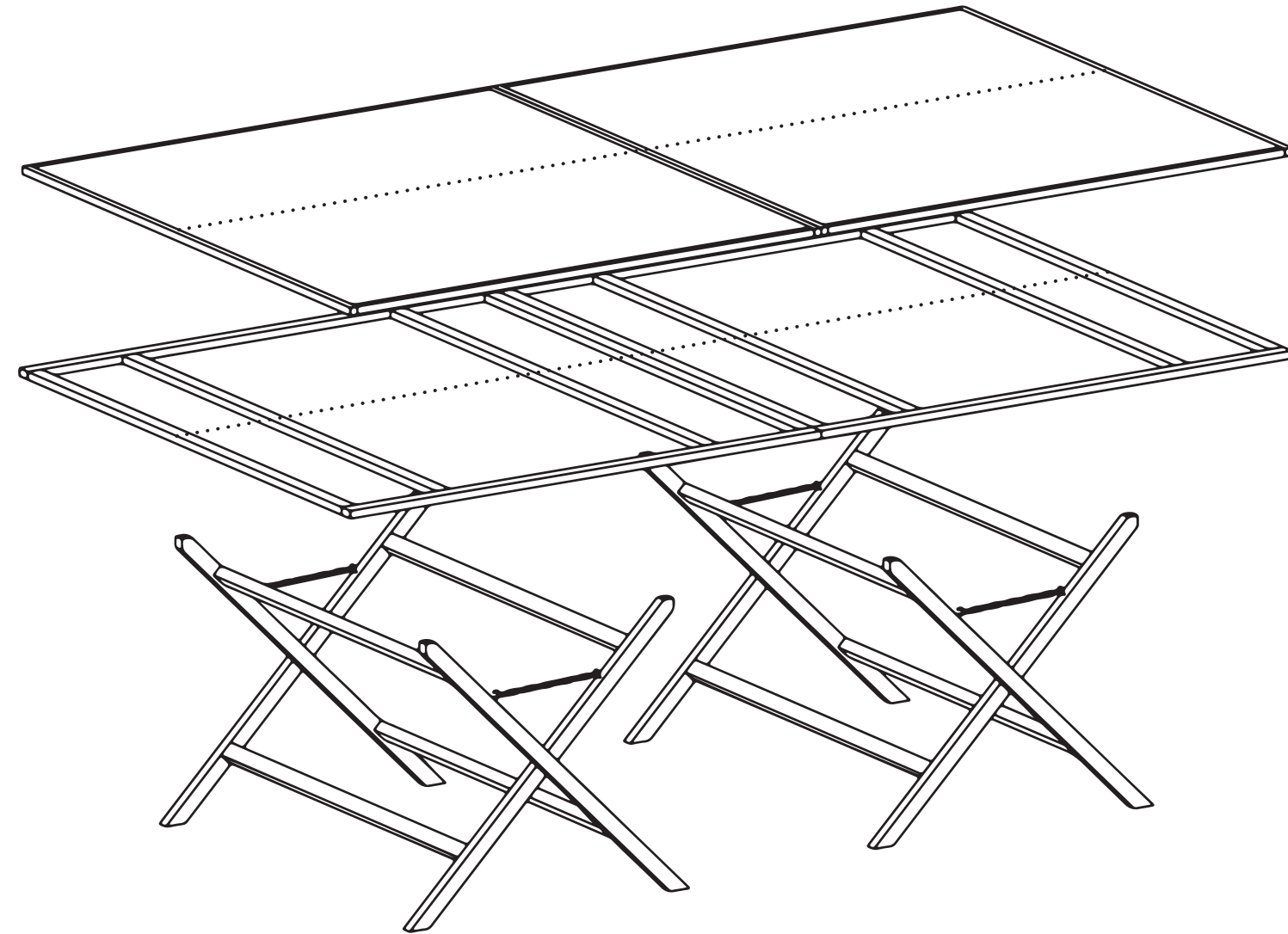
STEP 7

Assemble the pieces according to the plans and sides shown here. **Add a 32 cm chain** in order to reinforce the **stability** of the trestles.

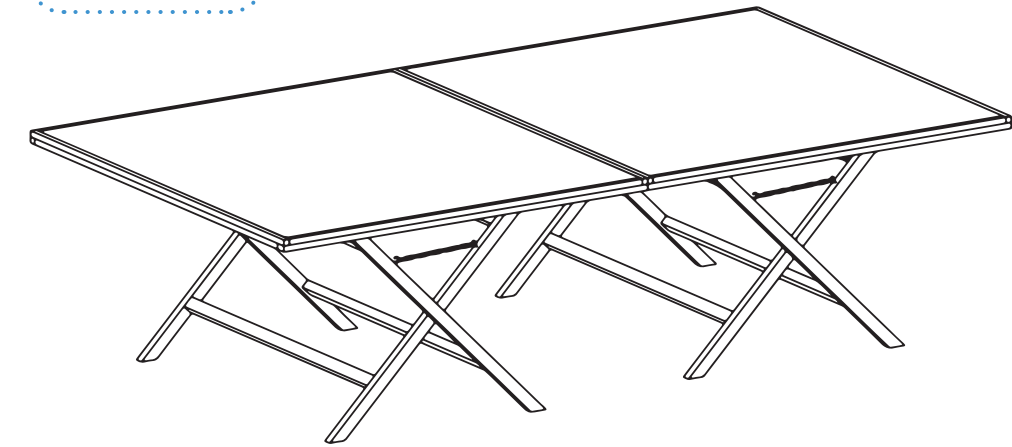


WOODEN TABLE ON TRESTLES

5
GENERAL
TABLE
ASSEMBLY



COMPLETE
TABLE



KIT TABLE

THIS MODEL HAS BEEN CONCEPTUALISED AND TESTED IN FRANCE.

ADVANTAGES

- ♦ affordable cost
- ♦ easily transportable

THIS TABLE IS
**EASILY
TRANSPORTABLE
AND IDEAL FOR
INDOOR USE**

DISADVANTAGES

- ♦ short lifespan
- ♦ inappropriate for a para table tennis use

EQUIPMENT

- ♦ 2 plywood boards (1,52 x 1,38 x 2 cm)
- ♦ 2 plywood boards (1,00 x 1,50 x 2 cm)
- ♦ bracket (4 x 4 cm)
- ♦ net



TOOLS

- ♦ jigsaw / circular saw
- ♦ drill / screwdriver
- ♦ meter
- ♦ hammer
- ♦ level

200 euros
including labour

building duration
2 days maximum

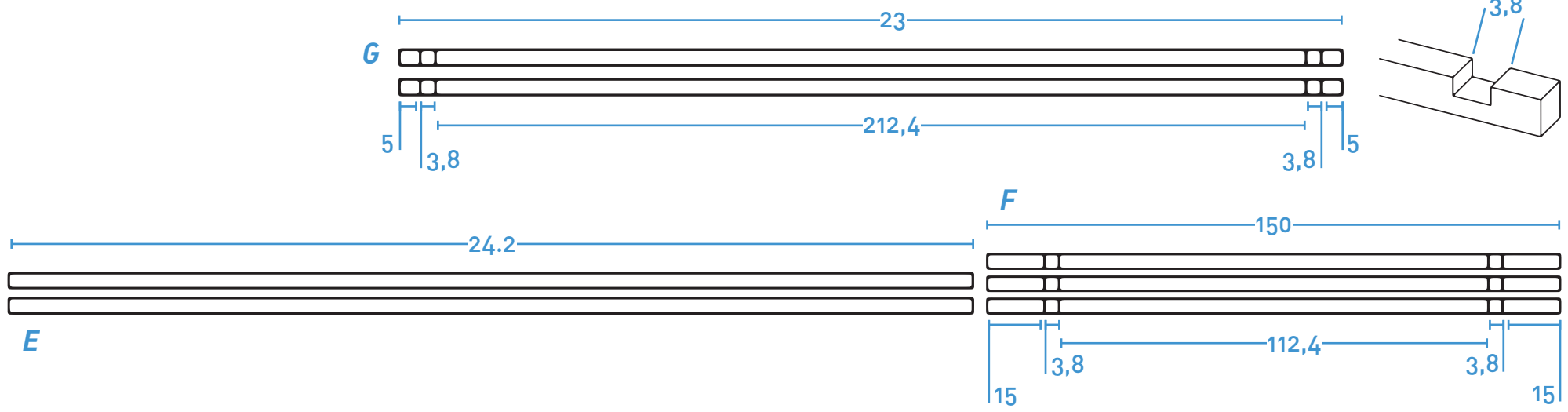
TABLE IN KIT

EQUIPMENT

- ♦ wood
- ♦ screws of 60 mm
- ♦ polystyrene

TOOLS

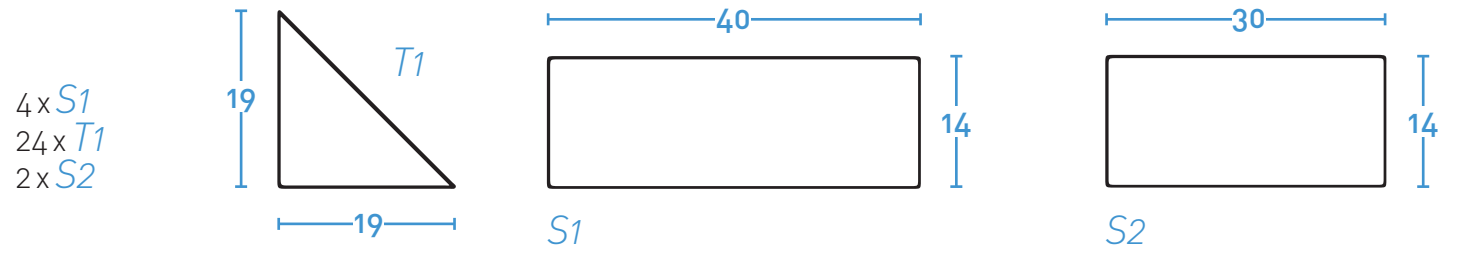
- ♦ a jigsaw
- ♦ a carpenter's hammer
- ♦ a crowbar
- ♦ a level



PREFABRICATION OF POLES

STEP 1

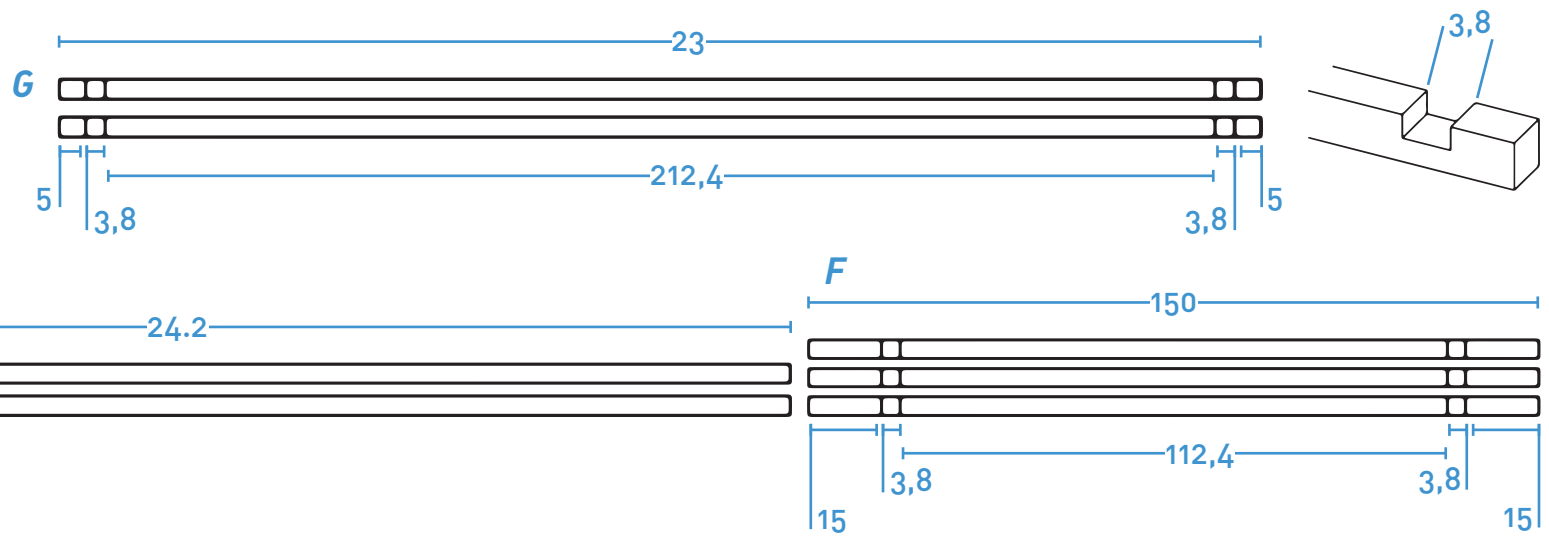
Cut into slabs of 100x150 cm the elements below:



We have: 4x S1
24x T1
2x S2

STEP 2

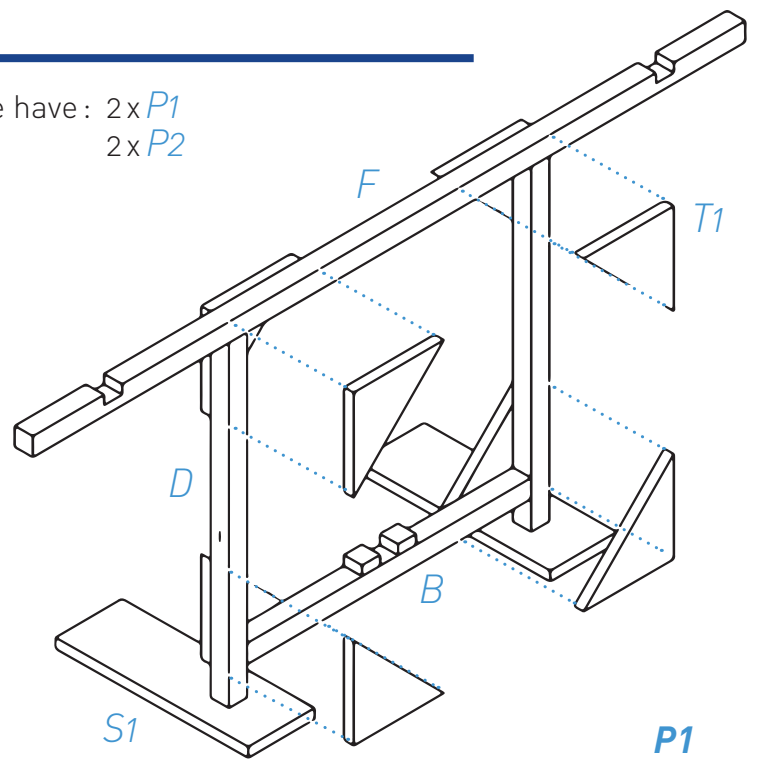
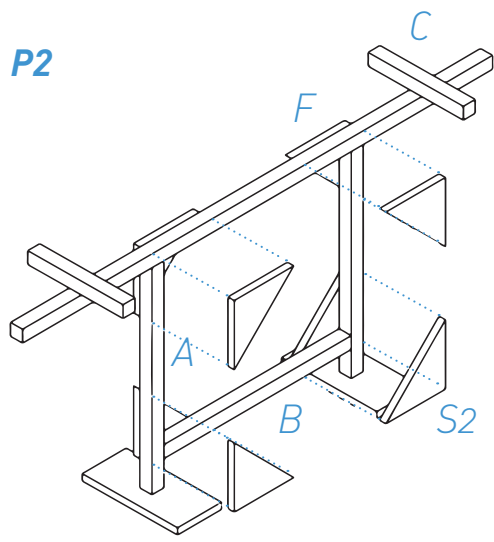
Cut out the brackets as shown in the ribs below:



STEP 3

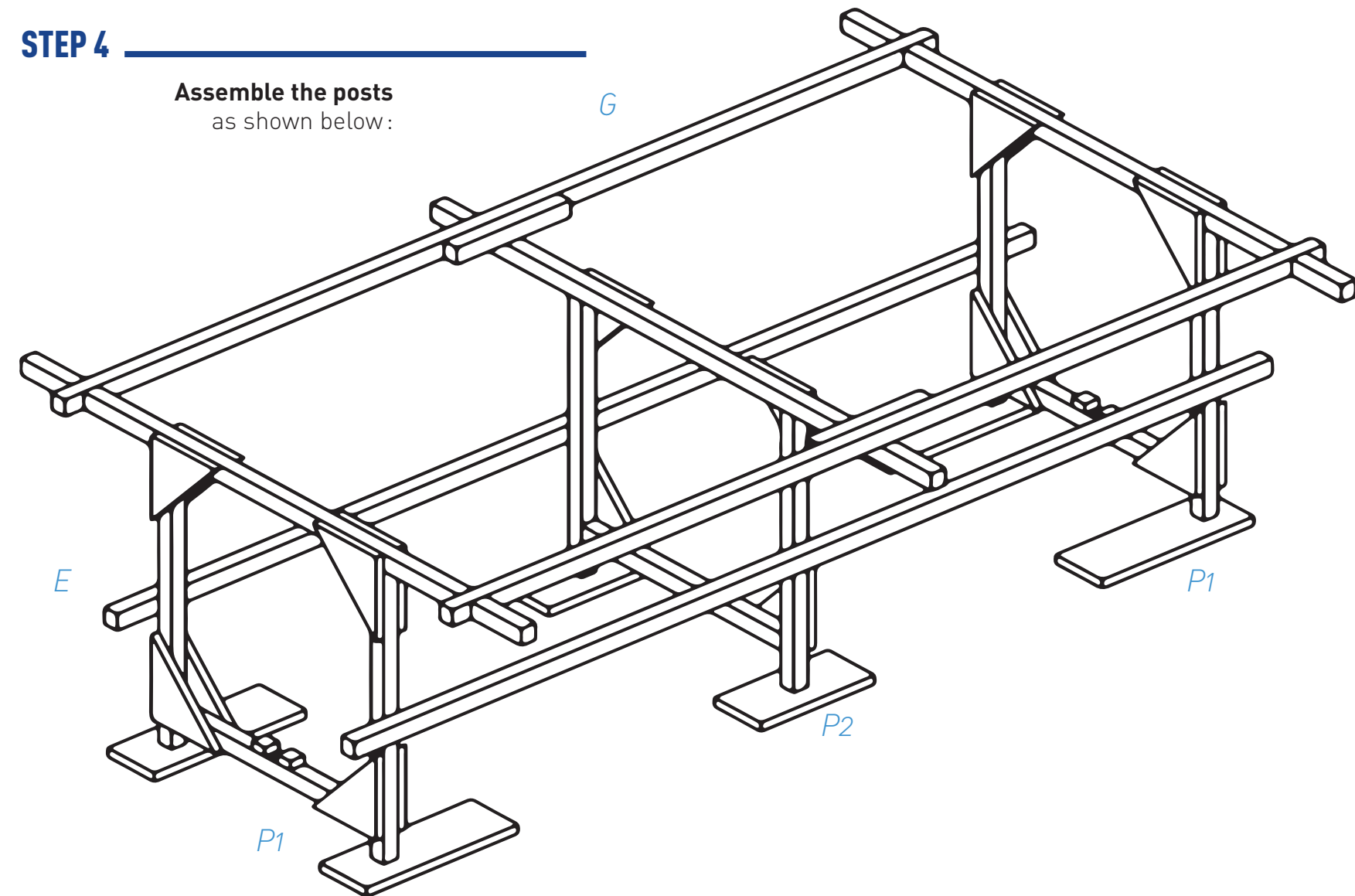
Assemble the posts as shown below:

We have: 2x P1
2x P2



STEP 4

Assemble the posts
as shown below:



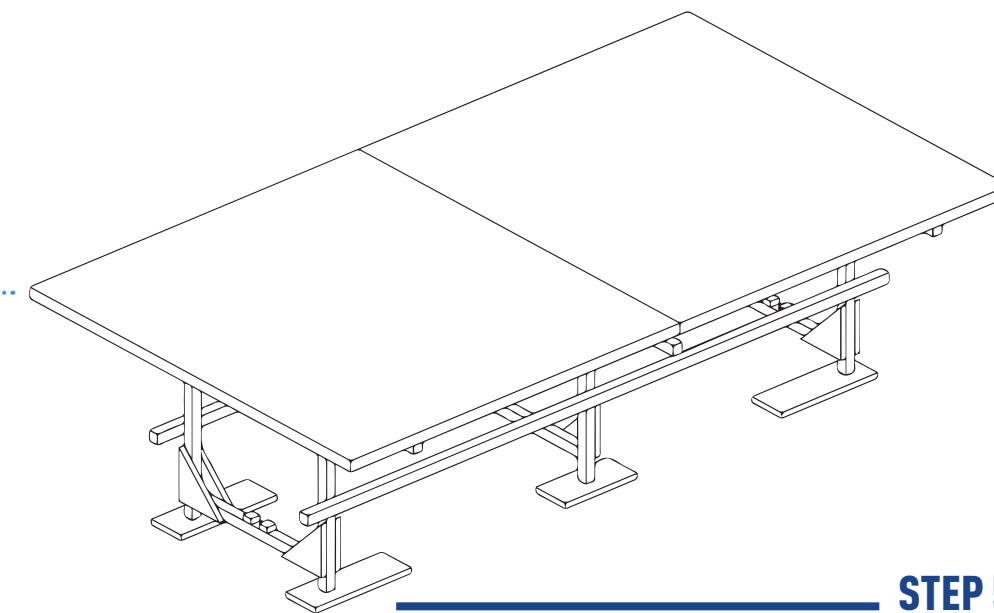
FINISHES

EQUIPMENT

- ♦ jigsaw
- ♦ carpenter's hammer
- ♦ drill / a screwdriver
- ♦ level
- ♦ net

TOOLS

- ♦ plywood boards 152 x 138
- ♦ screws of 60 mm



STEP 5

Lay both tray elements
on the stands.

STEP 6

Paint the table doubles lines
as required for play.



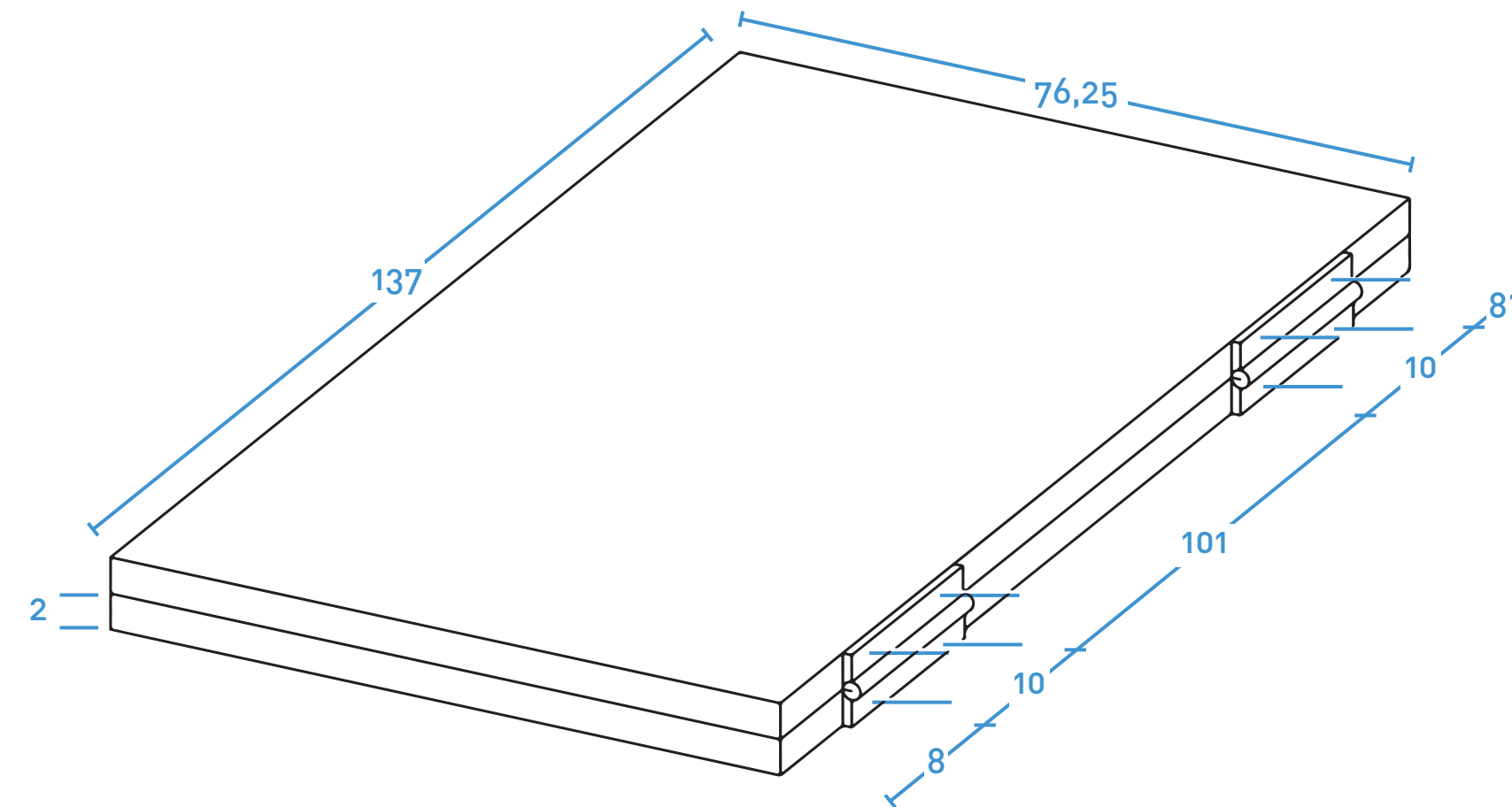
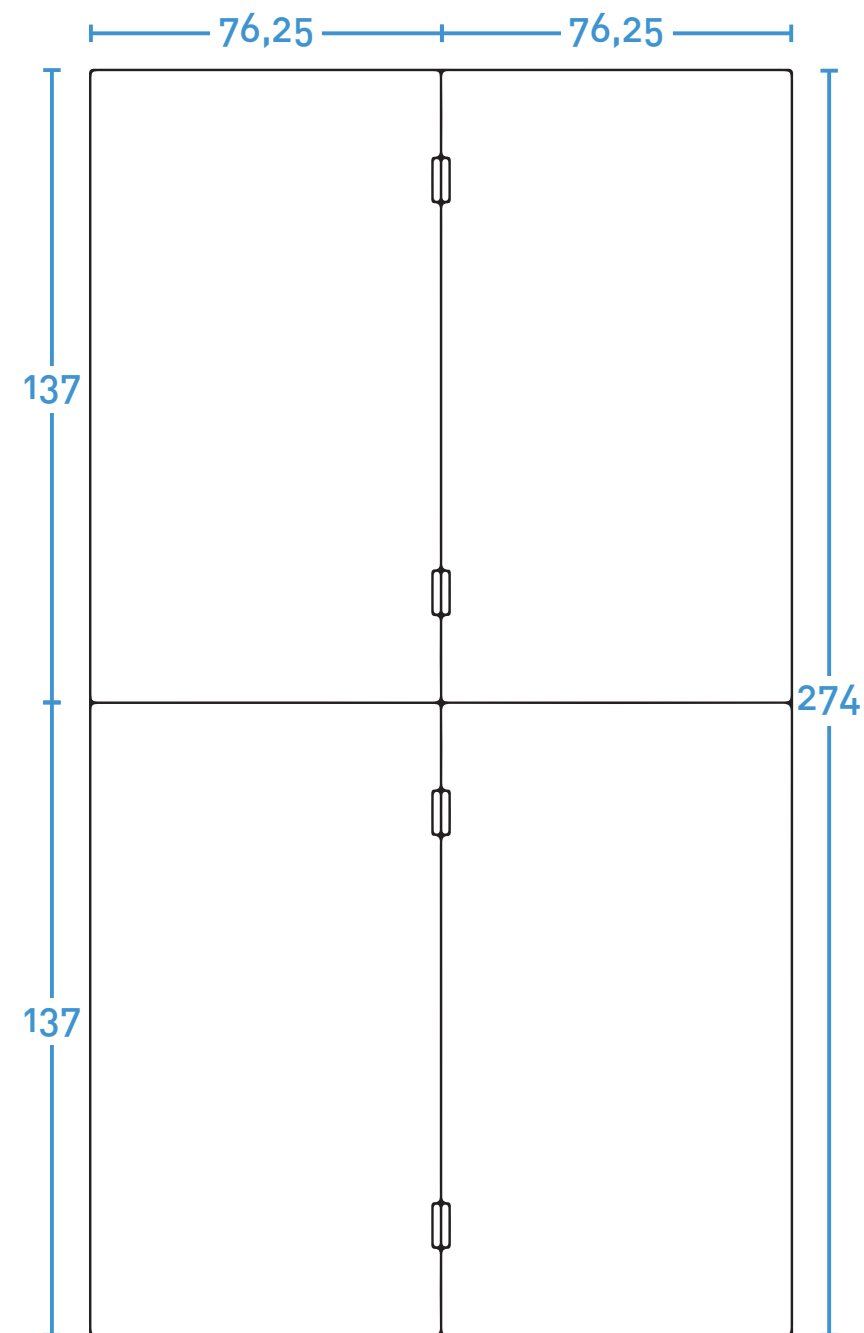
ANOTHER OPTION

EQUIPMENT

- ◆ 4 hinges
- ◆ 4 planks 137 x 76,5 x 2 cm

This option provides an additional possibility to facilitate transportation of the board.

It is therefore necessary to **adapt the cutout according to the chosen model.** That will for instance require an additional cut out of the brackets of the table in the kit.



Whilst this cutout allows easy transportation, makes the table more fragile.

CLASSROOM TABLE

THIS TABLE CAN BE ADJUSTED IN HEIGHT IN ORDER TO SERVE 2 PURPOSES: AS A SCHOOL DESKS AND AS A TABLE TENNIS TABLE.
IT HAS BEEN TESTED BOTH IN SOUTH AFRICA AND KENYA.

ADVANTAGES

- ♦ modular table
- ♦ double function
- ♦ easy to tidy

THIS TABLE IS SUITABLE
FOR **INDOOR**
AND **EDUCATIONAL USE**

DISADVANTAGES

- ♦ applied technique more complicated
- ♦ inappropriate for para table tennis use
- ♦ high cost
- ♦ longer installation time

EQUIPMENT

- ♦ wooden boards cut to :
 - **8** x (250 x 8 x 3 cm)
 - **4** x (260 x 5 x 1,5 cm)
 - **1** x (200 x 70 x 2 cm)
 - **14** x (220 x 3 x 2 cm)
 - **4** x (77 x 137 x 2 cm)
 - wooden bars **3** x (2 cm Ø x 1 m)
- ♦ **200** x 60 mm screws
- ♦ a net



TOOLS

- ♦ reciprocating
- ♦ saber saw /
- ♦ jigsaw
- ♦ drill
- ♦ screwdriver
- ♦ hammer
- ♦ carpenter's
- ♦ hammer

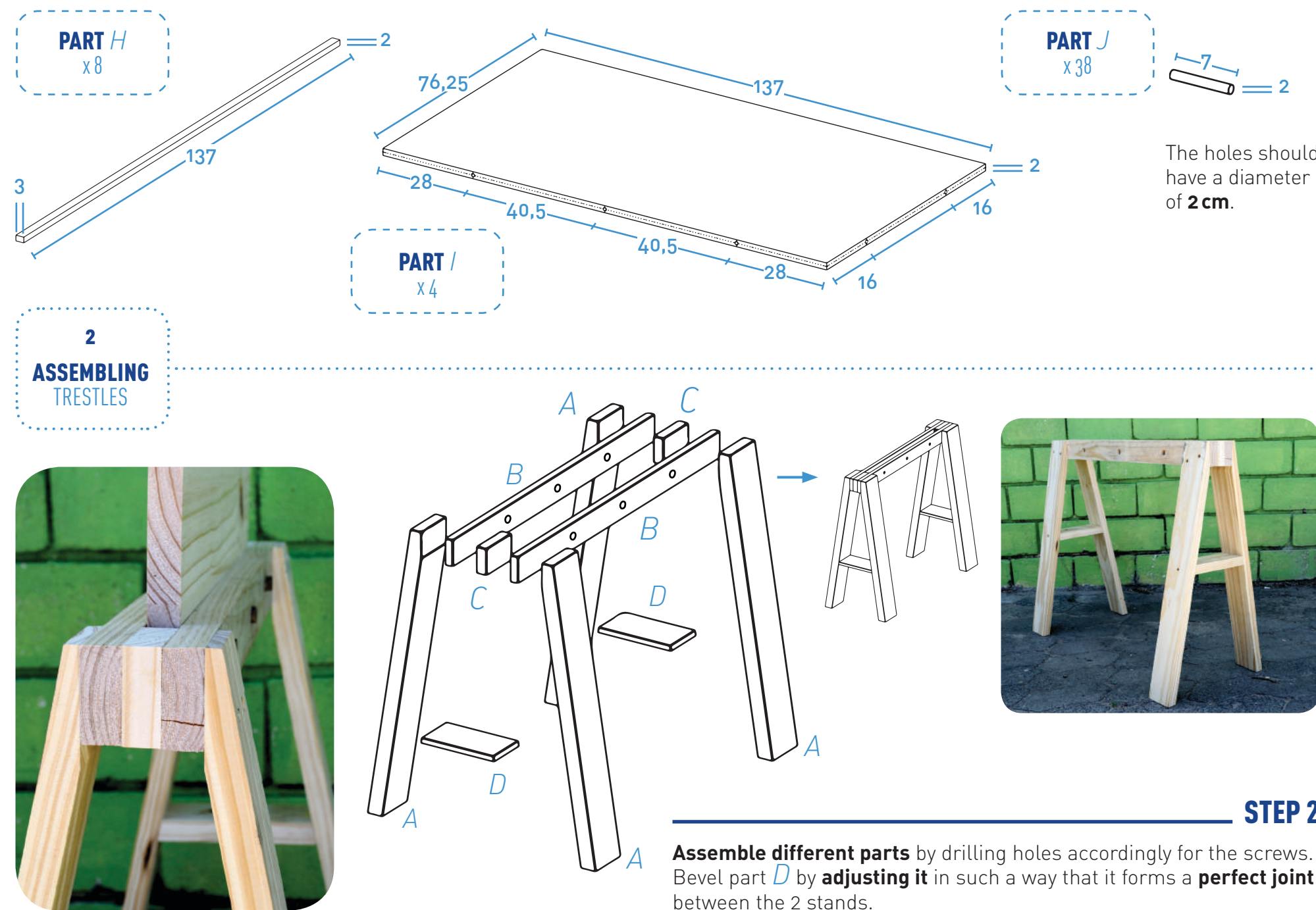
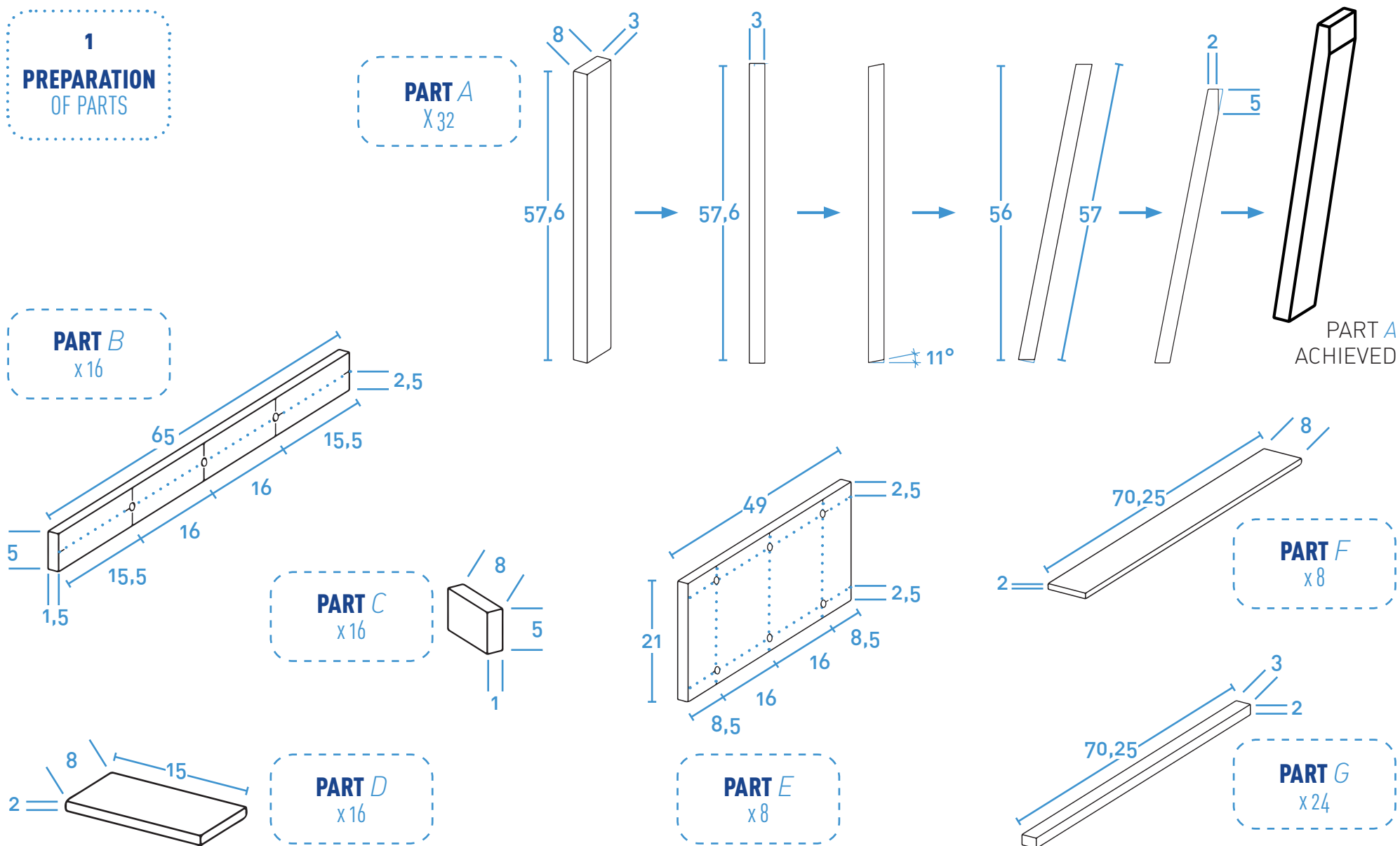
225 euros
including
labour

**Building
duration**
2 days

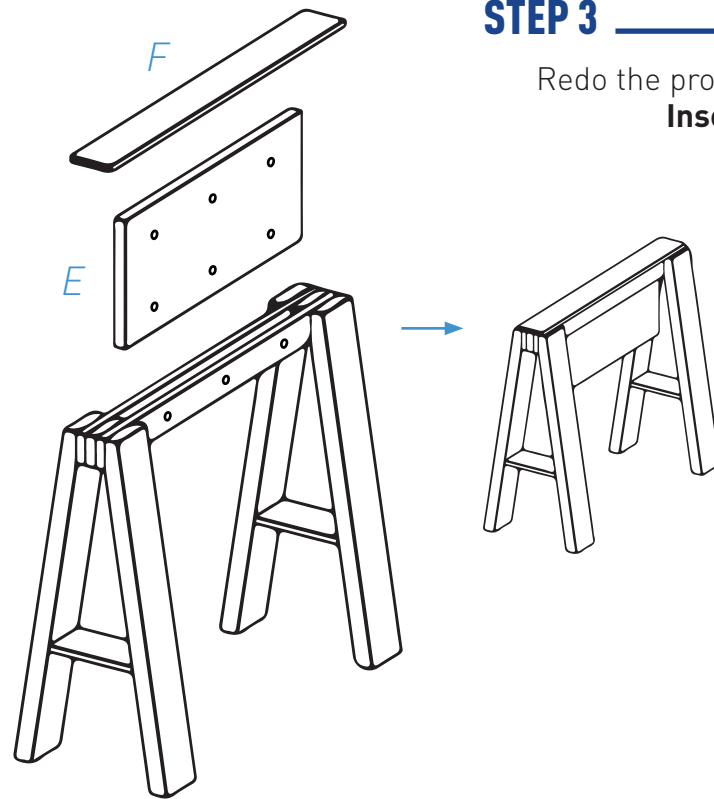
CLASSROOM TABLE

STEP 1

Prepare all the parts required to make a table.



CLASSROOM TABLE

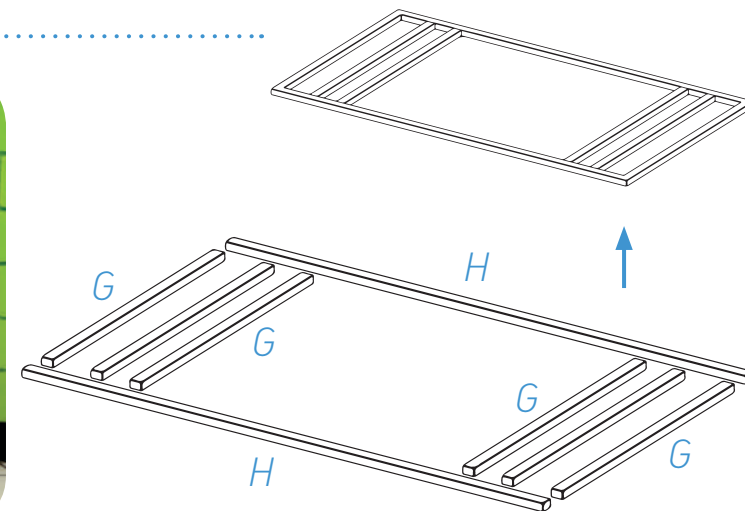


STEP 3
Redo the process in order to obtain **two trestles**.
Insert 3 connectors (J) in the **openings**
to hold it firmly together.

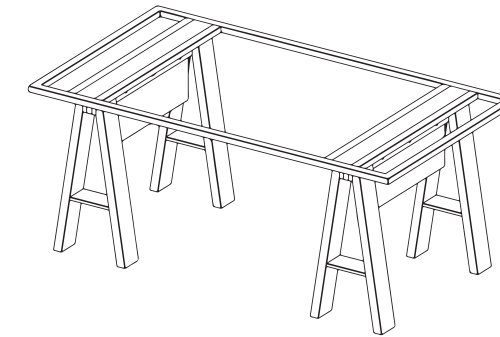
4
ASSEMBLING
THE TABLE TOP



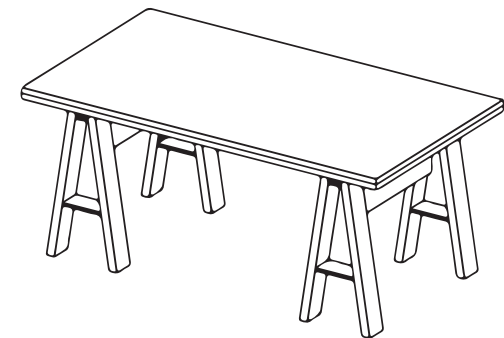
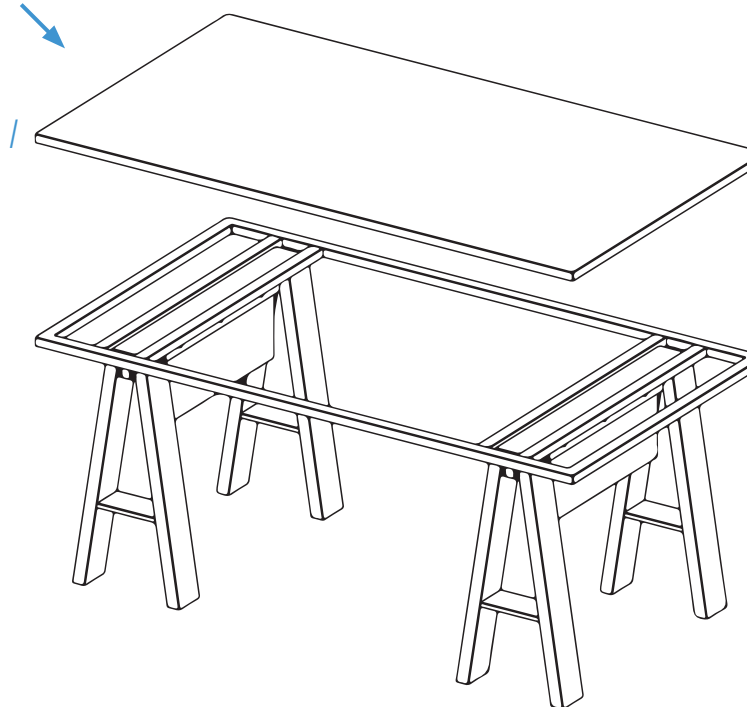
STEP 4
Assemble different parts by **drilling holes** accordingly for the screws.



STEP 5
To ensure greater stability, **screw the board to the top surface structure**. Ensure that the **screwing is done from the bottom of the top board** without the screws reaching the top playing surface as this may affect the bouncing of the ball.



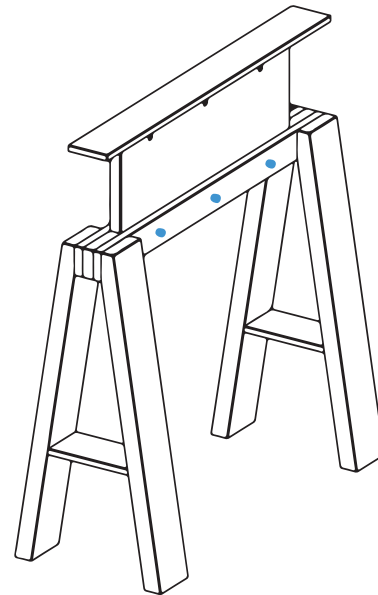
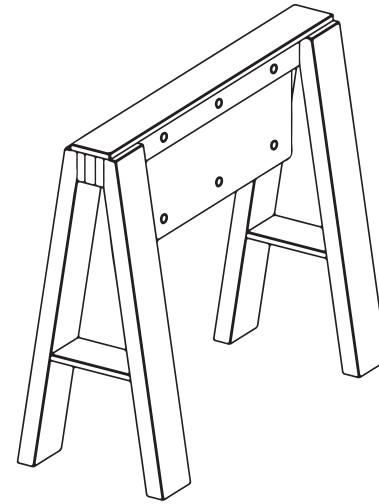
5
FINISHING
A CLASSROOM
DESK



CLASSROOM TABLE

STEP 6

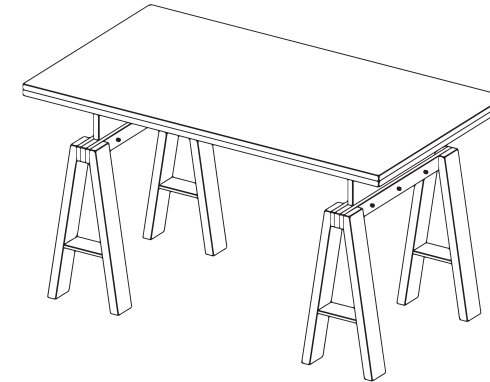
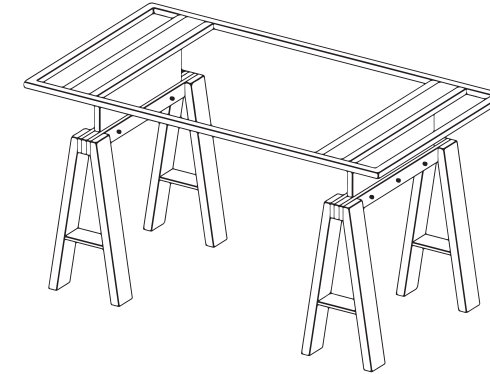
Adjust the trestles to the **high position** by removing and **replacing the 3 connectors** (J) on each trestle.



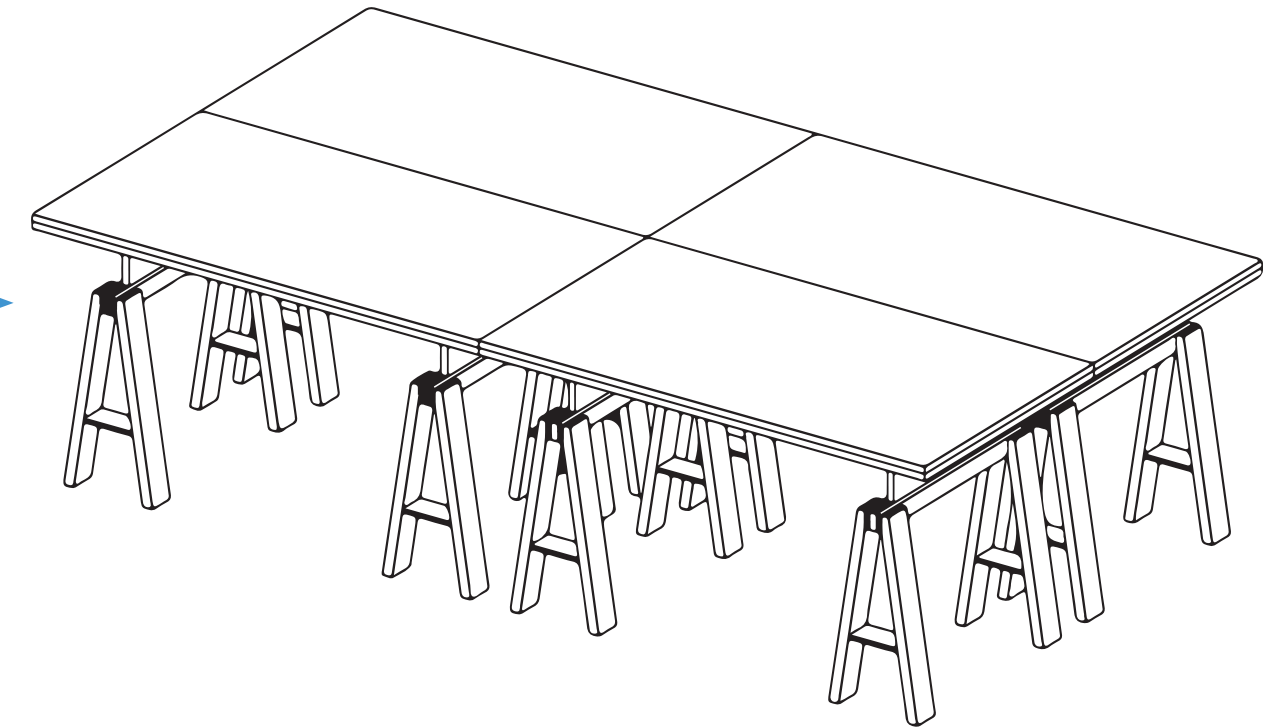
6
FINISHING
THE TABLE
TENNIS TABLE

STEP 7

Join the **4 table tops** using the 10 wooden connectors (J). **Fix a net** on the table to play.



→ x4 →





Graphic design : Cécile Wintrebert



For further information regarding this manual of Ping sans Frontières
please contact contact@pingsansfrontieres.org

