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### INDOOR NORTH WALL

### construction plan



# TOOLS

- Table saw for the handle bars (possibly have it made by a carpenter)
- Crosscut saw
- Drill, drill: Ø 30 mm (e.g. Forstner bit)
- Router

(rounding cutter with radius 10 mm)

- Jigsaw
- Drill bit for heavy-duty anchor: Ø 10 mm

### MATERIAL

Total material costs approx. 280 EUR



#### **BASE PLATES**

Material:	maritime pine
Thickness:	24 mm
Quantity:	2 pieces
Format:	125 x 250 cm (price per panel approx. 50-70 EUR)

#### SCREWS AND NUTS



150 x M8 drive-in nuts



33 x machine screws M8 length 70 mm (for handles 4 cm)
33 x machine screws M8 length 60 mm (for handles 3 cm)
75 x machine screws M8 length 40 mm (for handles 1.5 cm, as well as for the kicks)

200 x washers, size 8.4 mm inner diameter (DIN 9021)



4 x Heavy Duty Hooks

- Cordless screwdriver
- Hand planer
- Box cutter
- Steel ruler
- Hot glue gun

### MATERIAL



#### SANDPAPER

5 sheets of sandpaper with fabric (Bosch P80)

5 x 21 x 28 cm

Cut into pieces with a carpet knife and a firm ruler: 33 x 5 x 7 cm (for 4 cm thick handles) 33 x 4 x 7 cm (for 3 cm thick handles) 33 x 3 x 7 cm (for 1.5 cm thick handles)

#### **SQUARE TIMBER (D1)**

to connect the two panels

(Assembly instructions see p. 14)

4 x approx. 4 x 6 cm length: min. 120 cm

length 120 cm 🗉

#### **CLIMBING ROPE (DECOMMISSIONED)**

4 x	2,5 m	ø 9 – 11 mm
4 x	3,5 m	ø 9 – 11 mm

#### **MAGNETIC RINGS**

Magnet ring, Ø 18/10 x 4 mm, neodymium N40 (NdFeB) nickel

The holds for defined boulders from the APP are marked with these magnetic rings.

Better: LED system

### MATERIAL

#### **STRIPS**

Hardwood (ash, oak or comparable quality)



#### S1 / S2 / S3 / S4

\_\_\_\_\_ strip length: 100 cm \_\_\_\_\_

As indicated, the strips are undercut at  $15^{\circ} / 30^{\circ} / 45^{\circ}$ .

The edges of S2 / S3 / S4 rounded off with the router ( $\emptyset$  10 mm), with 1.5 cm thick handles (S1) the edge at the front is only slightly flattened with the plane (plane approx. 2 times).

Then the steps and handles are cut off the strips (S1 / S2 / S3 / S4) in the specified length, the holes are pre-drilled and the sandpaper is glued on.

The left and right corners of all handles are finished with 40s sandpaper slightly rounded (approx. 3 mm radius).

#### PREPARE STRIPS

#### STRIP 1 (S1)







#### **PREPARE KICKS**

**S1** 

30°

 $\leq$ 

 $\geq$ 



**42 x** 1,5 x 5 x **5 cm** undercut: **30**°

- Drill a hole (Ø 8.5 mm).
- The sharp edge at the front is slightly rounded twice with a hand planer.



drill hole Ø 8,5 mm



### PREPARE HANDLES





#### S1 / handles (15°, 45°)

undercut: <b>15°</b>	
undercut: <b>45°</b>	
	undercut: <b>15°</b> undercut: <b>45°</b>

- Drill a hole (Ø 8.5 mm).
- Cover with 3x7 cm sandpaper (Hot glue gun, gloves!)





length: 10 cm -

#### S1 / handles (30°)

STR	RIP 1 (S1-30°)		
9 x	1,5 x 5 x <b>10 cm</b>	undercut: <b>30°</b>	

- Drill a hole (Ø 8.5 mm).
- Cover with 3x7 cm sandpaper

(Hot glue gun, gloves!)



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drill hole Ø 8,5 mm

# $\bigcirc$

S2 / handles (15°, 45°)

STR	IP 2 (S2-15°)						
12 x	3 x 6 x <b>8 cm</b>	undercut: <b>15°</b>					
STR	IP 2 (S2-45°)						
<b>11</b> x	3 x 6 x <b>8 cm</b>	undercut: <b>45°</b>					
• Drill	• Drill a hole (Ø 8.5 mm).						

 Cover with 4 x 7 cm sandpaper (hot glue gun, gloves!)







#### S2 / handles (30°)

STR	IP 2 (S2-30°)	
9 x	3 x 6 x <b>10 cm</b>	undercut: <b>30°</b>

- Drill a hole (Ø 8.5 mm).
- Cover with 4 x 7 cm sandpaper (hot glue gun, gloves!)



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#### S3 / handles (15°°)

STR	IP 3 (S3-15°)	
<b>12</b> x	4 x 6 x <b>8 cm</b>	undercut: <b>15°</b>

- Drill a hole (Ø 8.5 mm).
- Cover with 4 x 7 cm sandpaper (hot glue gun, gloves!)





 $\odot$ 

length: 10 cm

#### S3 / handles (30°)

	STRIP 3	(S3-30°)
12 x	$4 \times 6 \times 10 \text{ cm}$	undercut: 30°

- Drill a hole (Ø 8.5 mm).
- Mill the edge with a router Ø 10 mm
- Cover with 5 x 7 cm sandpaper (hot glue gun, gloves!)





length: 8

#### S4 / handles (45°)

STRI	P 4 (S4-45°)	
9 x	4 x 8 x <b>8 cm</b>	undercut: <b>45°</b>

- Drill a hole (Ø 8.5 mm).
- Mill the edge with a router Ø 10 mm
- Cover with 5 x 7 cm sandpaper (hot glue gun, gloves!)



### HERE WE GO...





#### Position of the finger holes

**5.** drill finger holes (through BOTH plates lying on top of each other!)

Tip: Use a drilling template (see picture, right)

- 6. The edges of the finger holes with a router (Ø 3.6 mm) smooth (optionally with sandpaper)
- 7. Drill holes for tilt adjustment (POS 1 / POS 2 / POS 3). (through BOTH plates lying on top of each other!)
- **8.** Drive-in nut on the back hit both plates



POS 1: Hole for 30° inclination (drill: Ø 12 mm)

POS 2: Hole for 15° inclination (drill: Ø 12 mm + Ø 30 mm)





(drill: Ø 30 mm)

Excess rope will be pinned back through this hole









2 - finger hole (2FL): Grid mark = center of hole



Note position! See grid (left)

3-finger-hole (3FL): Grid mark = center of hole









(2 drill centers at a distance of 2 cm) Tip: Use a drilling template, otherwise the 2nd hole will break out on the side!



2 cm distance (drill center points)





drilling template

(2 drilling centers at a distance of 4 cm)





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- **9.** Mark the positions A-N (horizontal) and 1-11 (diagonal) on the two plates with permanent marker.
- **10.** Screw in a screw next to each finger hole (this is used to attach the magnetic rings for the marking the handles can be used for this fixing screws are used)
- **11.** handle assembly

### STRIP types:

STRIP 1	(S1-15°)	= 1,5 cm	15° undercut	
STRIP 1	(S1-30°)	= 1,5 cm	30° undercut	
STRIP 1	(S1-45°)	= 1,5 cm	45° undercut	
STRIP 2	(S2-15°)	= 3 cm	15° undercut	
STRIP 2	(S2-30°)	= 3 cm	30° undercut	
STRIP 2	(S2-45°)	= 3 cm	45° undercut	
STRIP 3	(S3-15°)	= 4 cm	15° undercut	
STRIP 3	(S3-30°)	= 4 cm	30° undercut	
STRIP 4	(S4-45°)	= 4 cm	45° undercut	

1,5 cm with 15°:	12 Pieces	3 cm with 15°:	12 Pieces	4 cm with 15°:	12 Pieces
1,5 cm with 30°:	9 Pieces	3 cm with 30°:	9 Pieces	4 cm with 30°:	12 Pieces
1,5 cm with 45°:	12 Pieces	3 cm with 45°:	11 Pieces	4 cm with 45°:	9 Pieces
1,5 cm total:	33 Pieces	3 cm gesamt:	32 Pieces	4 cm gesamt:	33 Pieces

14 x 14 positions = 196 positions total

– minus 42 Kicks = 154 positions for handles and holes

– minus 56 holes (2 panels á 28 holes)

= 98 screwed handles

	top le front	eft									
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m 8 cm	→A 11	2:00	B 3F	1:30	D 3:00	<b>E</b> / 45° 2FL	F	<b>G</b> - 45° 2FL	3:00	I 3FL	
18 c	10		0		1	-	0		<b>\</b>	0	(
18 cm	9	):00	45° 2F	L – 45° 3F	10:30	12:00	1FL	3FL	1:30	45° 2FL	- 4
 Е	9 🔾	1FL	12:0	0 1.30	) () IFL	3:00	4:30	1:30	) 1FL	10:30	
18 C						0.00					
c m	8 - 45°	2FL	9:0	0 9:00	10:30	– 45° 2FL	12:00	U 1FL	– 45° 2FL	1:30	
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18 cm	10	):30	16	12:00	3FL	1:30	45° 2FL	3:00	12:00	1FL	
	6 45°	) 3FL	9:0	0 10:30	) IFL	12:00	3FL	1:30	45° 3FL	3:00	
	5		1	0	_			1		Ń	
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	4 🚫	2FL	6:0	0 45° 3F	7:30	9:00	O 1FL	10:30	– 45° 2FL	12:00	45°
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18 cm		1:30	7:3	<mark>0 4:30</mark>	45° 2FL	1FL	9:00	– 45° 3FL	7:30	9:00	
cm	1	7:30	36	6:00	7:30	4:30	45° 2FL	6:00	7:30	3FL	-
m 18	0 Kick	(S1)	Kick (S1)	Kick (S1)	Kick (S1)	Kick (S1)	Kick (S1)	Kick (S1)	Kick (S1)	Kick (S1)	Ki
л <mark> </mark> 18 с	0 Kick	(S1)	Kick (S1)	Kick (S1)	Kick (S1)	Kick (S1)	Kick (S1)	Kick (S1)	Kick (S1)	Kick (S1)	Ki
3 cm   18 cn	0 <sup>Kick</sup>	(S1)	Kick (S1) B	Kick (S1) C	Kick (S1) D	Kick (S1) E	Kick (S1) F	Kick (S1) G	Kick (S1) H	Kick (S1)	Ki



125 cm

12. Screw walls on the back with square timber (D1).

Screw the square timbers to connect the two panels through the panels from the front!



Tip: If you want to mark your boulders with the iNoWa LED system, please use the ones at the back place the cross braces in such a way that there is still space for the drill holes for the LEDs. (https://i-nowa.com/ledsystem)



### ASSEMBLY

The wall is hung with 8 pieces of rope on 4 heavy-duty hooks (concrete ceiling).

4 x fixed ropes for 30° inclination of the plate 4 x variable ropes for 15° inclination of the plate

(consult a specialist if necessary!)



# **ADJUST INCLINE**



The knot clamps in the slot (POS2) and holds the wall in the 15° position.

If you want to put the wall in the 30° position, let the knot (after gently pushing the wall back) slide backwards through the larger hole.

The wall now leans forward until the Accounts in POS 1 the wall keeps at 30° slope

Tip: See the video on the website (i-nowa.com)

**POS 1:** Hole for 30° tilt

**POS 2:** Hole for 15 tilt

**POS 3:** hole for rope return

Tip: In the i-nowa APP you will also find boulders for 7.5° and 45° wall inclination. To do this, simply create additional clamping knots for the respective inclination.

### FAQ & NOTES

#### FAQ

•Which knots for fastening?

- > Overlock knot for incline adjustment
- > Overhand loops for attaching the side to the heavy-duty hook
- Set the slope of the wall:
- > Calculate with angle function
- > Inclinometer (mobile phone)

#### Tipps

- Tighten handles regularly!
- Loosened sandpaper can be reattached very easily with a hot glue gun.
- Video tutorials on assembly and use are available at www.i-nowa.com

#### APP

Download in the APP store or at www.i-nowa.com (Android version >= 4.4)

#### We would be happy if you...

- ... replicates our wall
- ... our boulder climbs
- ... puts new boulders in the app
- ... spread our idea further

Of course, the easiest way is to drop by and try out the wall: (see map on website for more iNoWa locations)

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#### Disclaimer :

For damage of any kind resulting from the use of the provided building instructions arise, the author assumes no liability and no responsibility. The use of the templates is at the user's own risk.