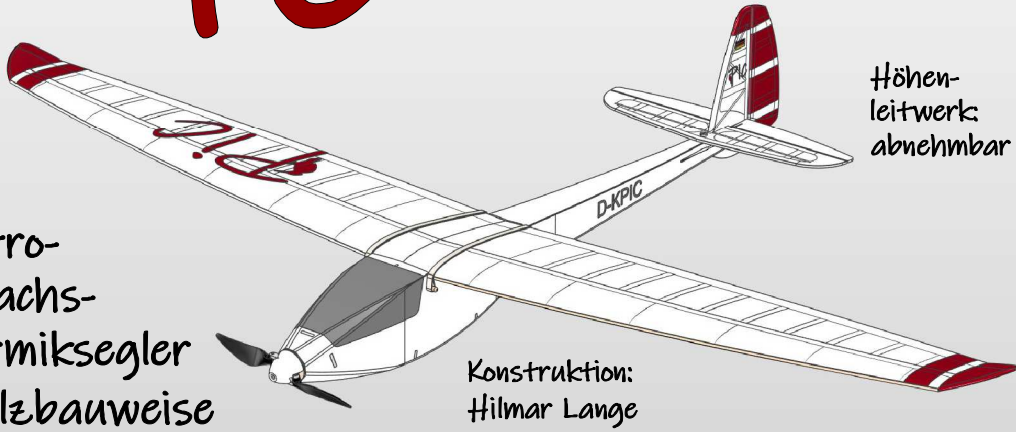


Pic

Bauanleitung	Seiten 2-9
Übersicht Rund-/Stabmaterialien	Seiten 10-14
Auflistung Plattenmaterialien	Seite 14
Bauplandraufsichten	Seiten 15-31
Lackiervorlagen	Seiten 32-33
Bauteile	Seiten 34-73

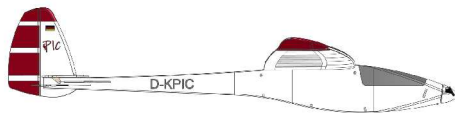
ein
Elektro-
Zweiachs-
Thermiksegler
in Holzbauweise



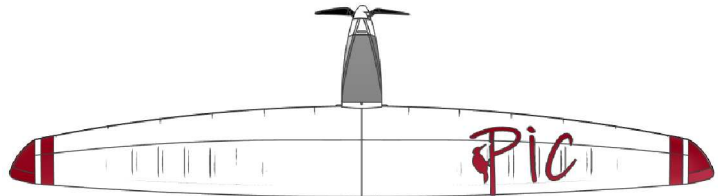
Höhen-
leitwerk:
abnehmbar

Konstruktion:
Hilmar Lange

Fügel:
geteilt

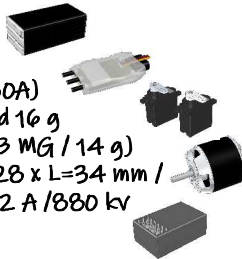


Spannweite: 1620 mm
Rumpflänge: 1042 mm
Profil: AG35
EWD: 2°
Flügelinhalt: 27 dm²
Abfluggewicht: 700-800 g
Flächenbelastung: 26-30 g/dm²



Komponenten:

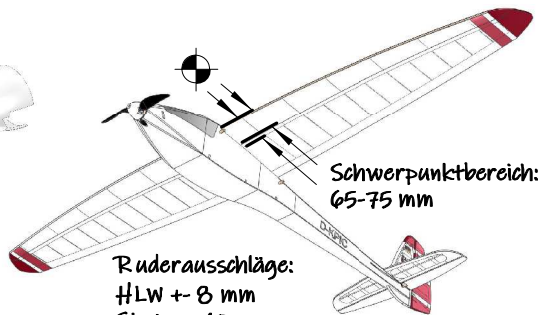
Akku: 3S LiPo 1500-1800 mAh
Steller: ab 30 A
(z.B. Spektrum SPMXAE30A)
Servos: 2 Stück, je zwischen 9 und 16 g
(z.B. D-Power DS-220 BB MG / 14 g)
Motor: Actro-N-28-4-880 / D=28 x L=34 mm /
4 mm Welle / 66 g / 13-22 A / 880 kv
Aeronaut #AN700304
Empfänger: ab 3 Kanäle



Die Klappflugschraube setzt sich zusammen aus:
Spannkonus 4,00 mm / Aeronaut #7123/04
Z-Spinner (CN) 42 mm / Aeronaut #7251/76
Blätter CAM-Carbon 2 12x6,5" / Aeronaut #7239/46

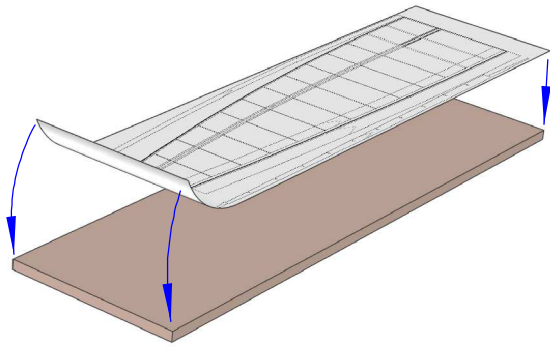


6 Vlies-Scharniere,
Zubehör für Anlenkungen
(siehe Seite 6)



Schwerpunktbereich:
65-75 mm

Ruderausschläge:
HLW + 8 mm
SLW + 40 mm
(jeweils ca. 30-45% EXP)



Vorarbeit: bekleben Sie ein ebenes Baubrett (z. B. 16 mm MDF) mit dem Bauplan Ausdruck (Sprühkleber) und beziehen Sie die Oberseite mit Bücherschutzfolie oder transparentem Pack-Klebeband.

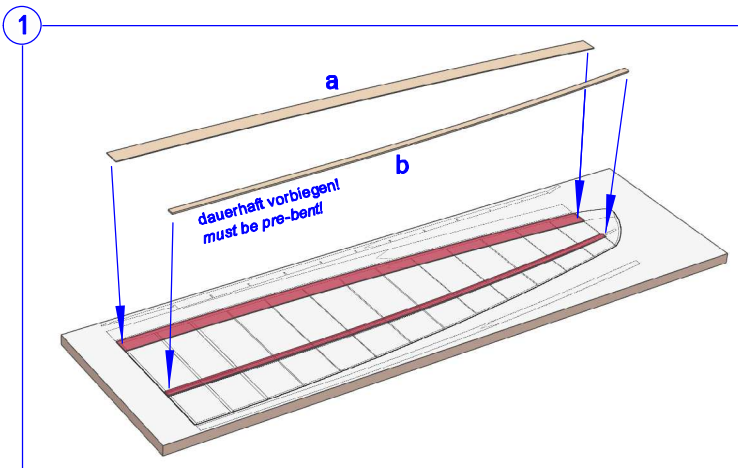
Alle Bauteile können darauf mit wenigen Tropfen Weißleim oder Sekundenkleber befestigt werden und lassen sich nach Vollendung des Bauabschnitts durch Unterhebeln wieder ablösen.

Fertigen Sie zwei spiegelbildliche Baubretter an!

Preparatory work: stick the building plan printout (spray adhesive) onto a flat building board (e.g. 16 mm MDF) and cover the top with book protection film or transparent packing tape.

All components can be attached to it with a few drops of white glue or superglue and can be detached again after the construction phase has been completed by levering under.

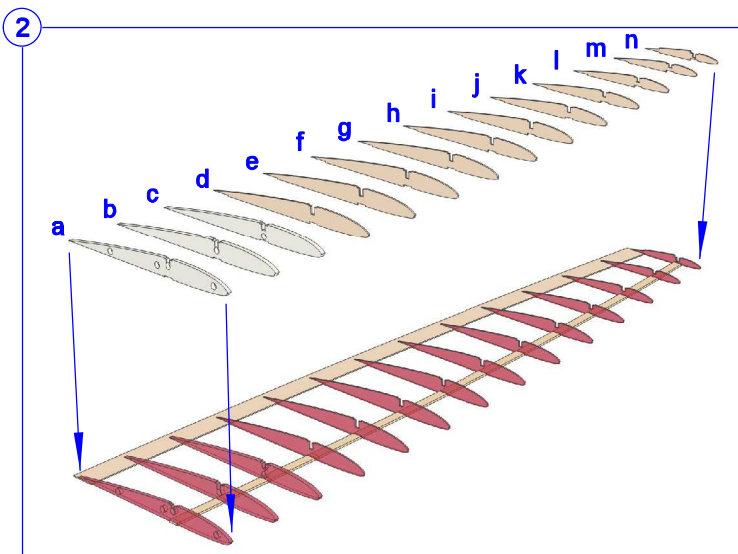
Make two mirror image building boards!



Der untere Holmgurt (b) besteht aus einer 2x10 mm Kiefernleiste und muss zuvor mit Hilfe von etwas Wasser und einem 150°C-Bügeleisens dauerhaft in die benötigte geschwungene Form gebracht werden. Alternativ kann man ihn auch aus 2 mm Flugzeugsperrholz aussägen (Seite 71-73)

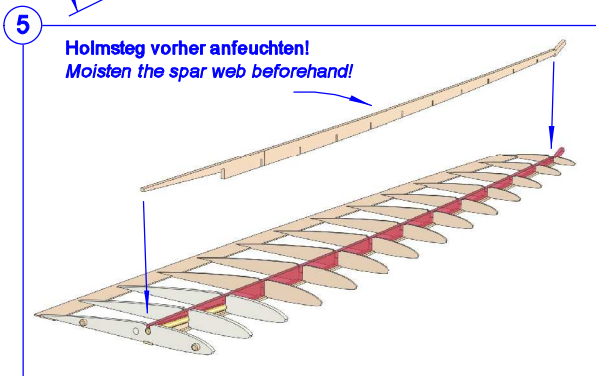
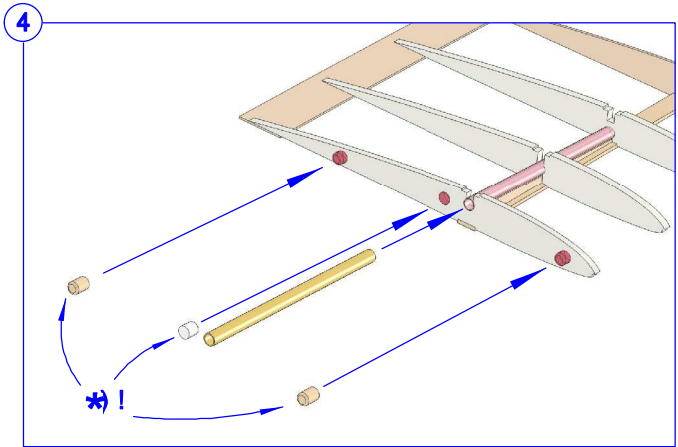
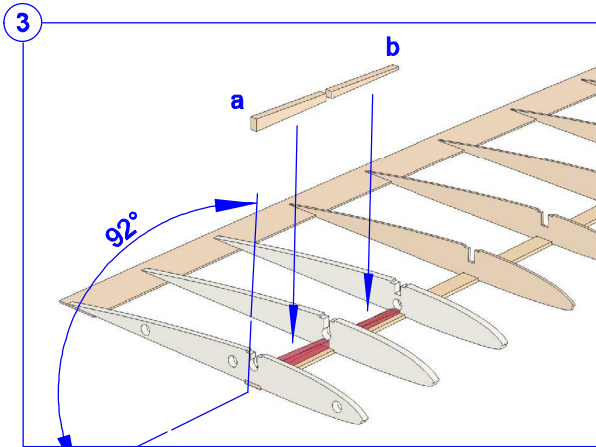
Fixieren sie nun den Holmgurt sowie die Endleiste (a) auf dem Baubrett.

The lower spar belt (b) consists of a 2x10 mm pine strip and must first be brought into the required curved shape with the help of a little water and a 150°C iron. Alternatively, you can also saw it out of 2 mm aircraft plywood (see pages 71-73). Now fix the spar and the trailing edge (a) on the construction board.



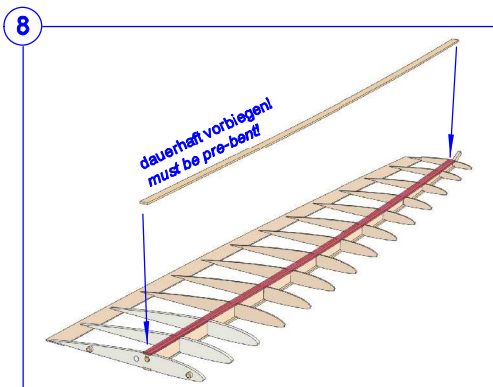
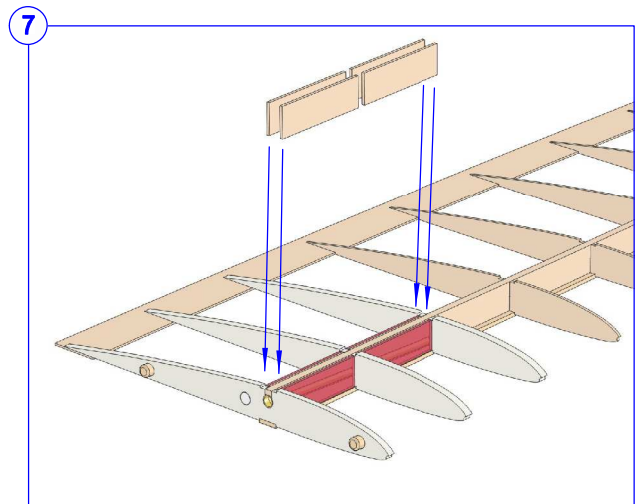
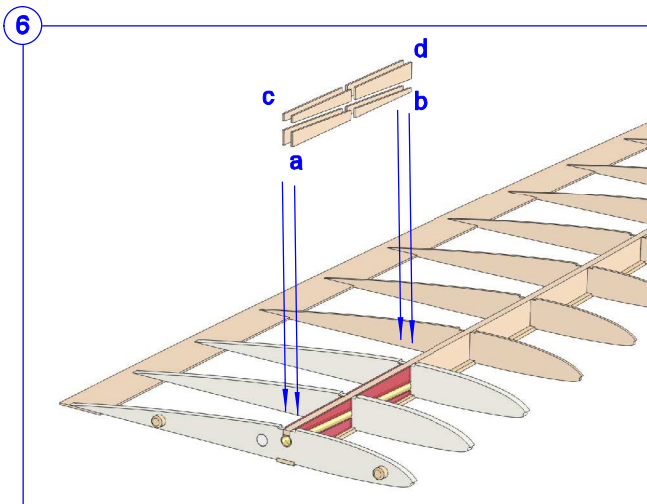
Fädeln Sie alle Rippen positionsgerecht auf den unteren Holmgurt auf. Verkleben Sie sie aber noch nicht, sondern erst nach dem Einsetzen des Holmstegs in Bauschritt (5)!

Thread all of the ribs onto the bottom spar in the correct position. Do not glue them yet, but only after inserting the spar bridge in construction step (5)!



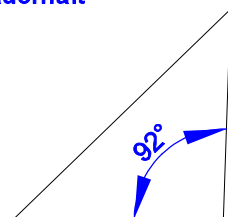
Setzen Sie die untere Holm-Auffütterung ein (3) und schieben Sie dann das Steckungsrohr in die Rippen a bis c ein (4). Es ist nicht unbedingt notwendig, aber beim Montieren eine angenehme Hilfe: Zentrierdübel *, nur in EINEM der Flügel, sowie ein Magnetpaar Ø4 x H4. Achten Sie bei den Magneten auf sich anziehende Polarität. Abschließend wird der Holmsteg aufgefädelt und alles miteinander verleimt (5).

*Install the lower spar pad (3), then slide the connection tube into ribs a through c (4). It is not absolutely necessary, but a pleasant help when mounting: centering dowels, *) only in ONE of the wings, as well as a pair of magnets Ø4 x H4 mm. Make sure the polarity of the magnets attracts each other. Finally, the spar bridge is threaded on and everything is glued together (5).*

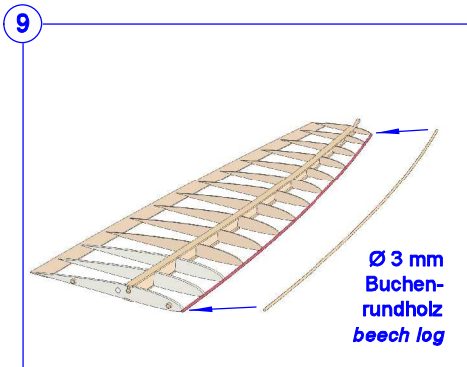


Die Verkastung des Steckungsrohres erfolgt mit den Bauteilen (6)a-d sowie (7). Anschließend wird der obere Holmgurt (vorher mit Wasserdampf dauerhaft in Form biegen) aufgeleimt.

The encasing of the connecting tube is done with the components (6)a-d and (7). Then the upper spar (previously bend it permanently into shape with steam) is glued on.

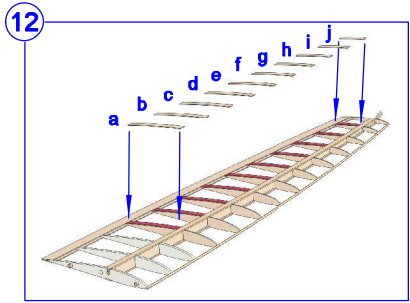
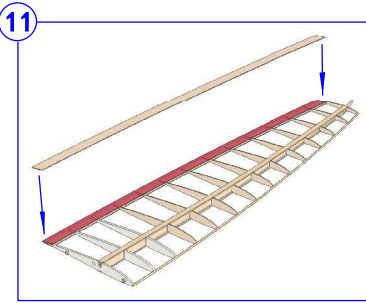
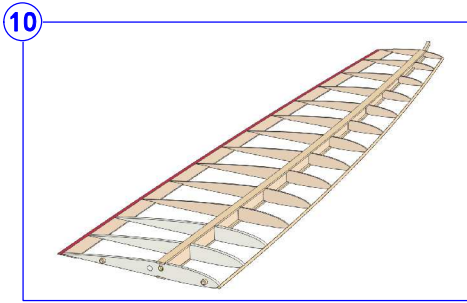


Winkelschablone Wurzelrippe
angle template root rib



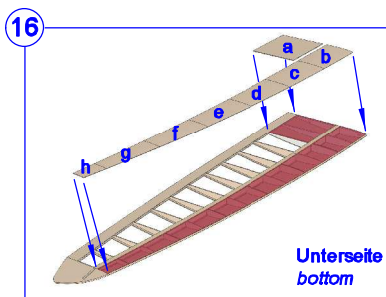
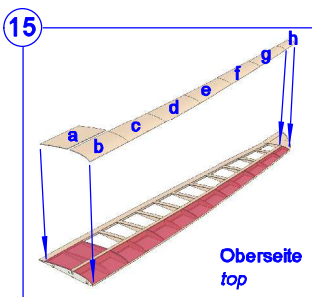
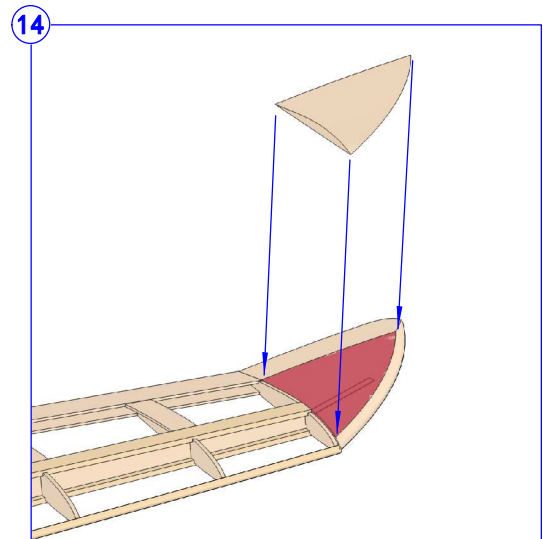
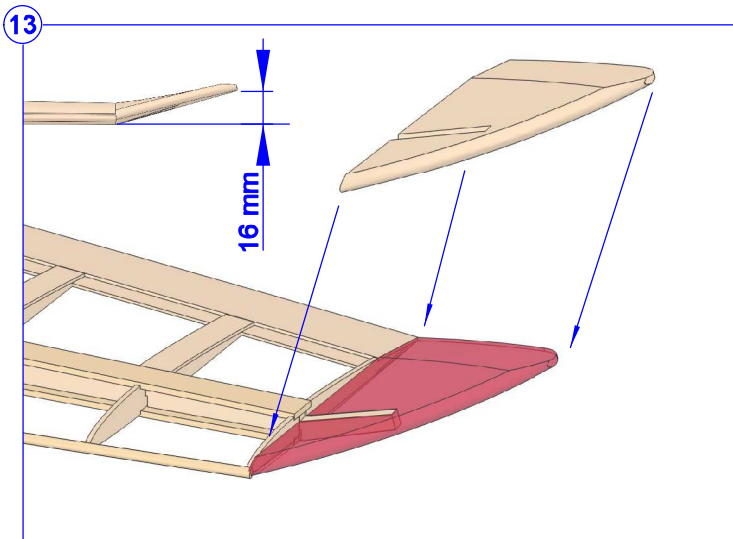
Leimen Sie die Nasenleiste vor die Rippen (9) und schleifen Sie die Endleiste im Verlauf der Rippen spitz aus (10). Danach kann der Endleisten-Aufdoppler aufgeleimt werden (11) und die Balsaholzrippen mit Aufleimern (12)a-j versehen werden. Die ersten drei Rippen (aus Sperrholz) sowie die letzte Rippe bleiben frei.

Glue the leading edge in front of the ribs (9) and grind the trailing edge to a point along the ribs (10). Then the trailing edge doubler can be glued on (11) and the balsa wood ribs can be provided with their top strips (12)a-j. The first three ribs (made of plywood) and the last rib remain free.



Setzen Sie die Flügelohren aus insgesamt drei Lagen 3-mm-Balsa zusammen. Die unteren beiden Lagen schließen am Holmsteg an, so dass eine Erhöhung um 16 mm an der Spitze entsteht (13). Leimen Sie nun die dritte Lage auf. Schnitzen und Schleifen Sie die Oberfläche so, dass sie im Profilverlauf verrundet ist (14).

Assemble the wing ears from a total of three layers of 3 mm balsa. The bottom two layers connect to the spar bridge, resulting in an increase of 16 mm at the tip (13). Now glue on the third layer. Carve and grind the surface so that it is rounded in profile (14).

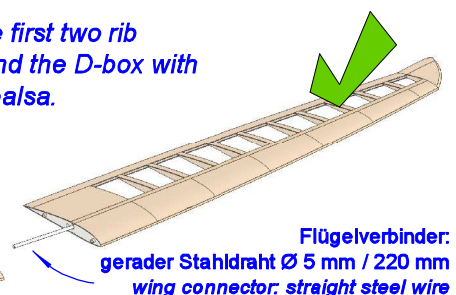


Beplanken Sie die ersten beiden Rippenfelder sowie die D-Box mit 1,5 mm Balsa.

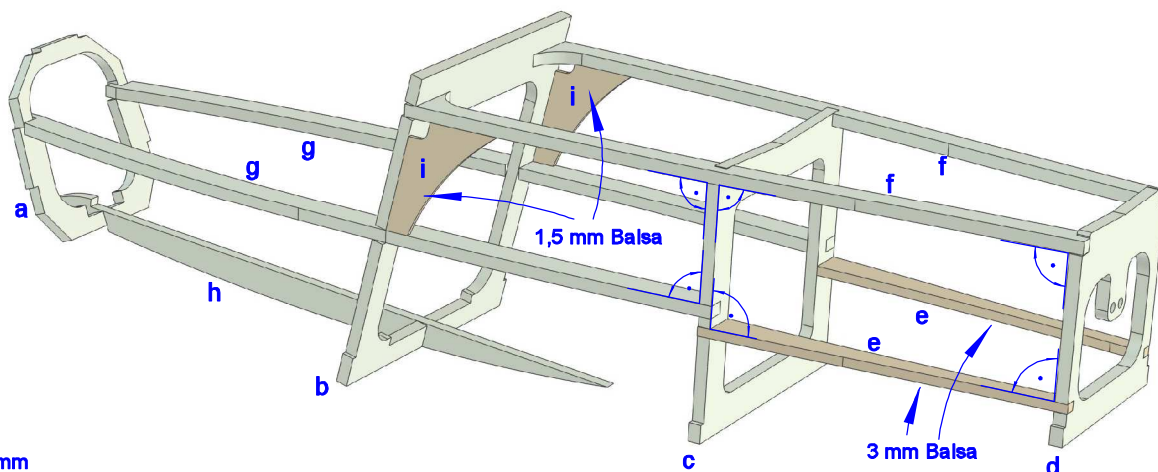
Plank the first two rib panels and the D-box with 1,5 mm balsa.

Unterscheidungshilfe: die Oberbeplankungsteile sind geringfügig größer als die Unterbeplankungen.

Differentiation aid: the upper planking parts are slightly larger than the lower planking.



17

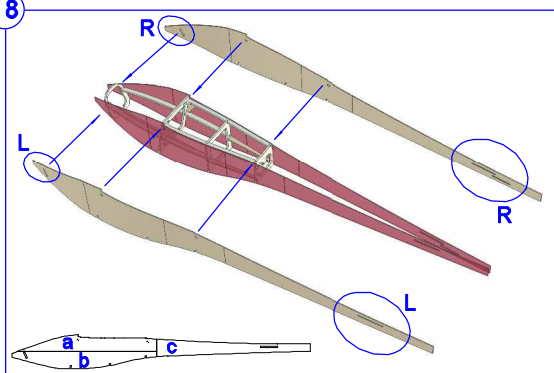


4 mm
Pappelspertholz
poplar plywood

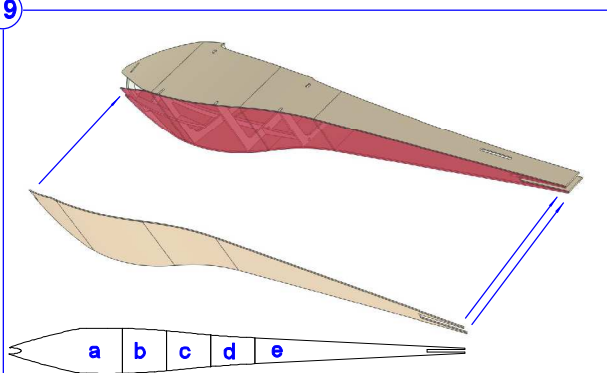
Setzen Sie das Rumpf-Innengerüst wie dargestellt zusammen und achten Sie dabei darauf, dass die seitlichen Zapfen (a, b, c, d, e) in die Aussparungen der Rumpf-Seitenteile (18) passen müssen. Dabei sind Aussparungen für schräg einzusetzende Teile derart dimensioniert, dass sich alles ohne Nacharbeit wie ein Puzzle zusammensetzen lässt. Verleimen Sie anschließend alle Teile untereinander.

Assemble the fuselage inner frame as shown, making sure that the side pins (a, b, c, d, e) fit into the recesses in the fuselage side panels (18). Recesses for parts to be inserted at an angle are dimensioned in such a way that everything can be put together like a jigsaw puzzle without any rework. Then glue all the parts together.

18



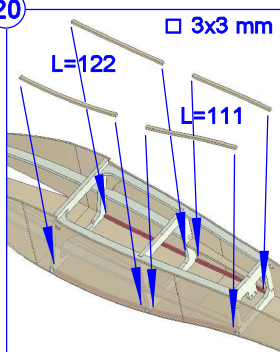
19



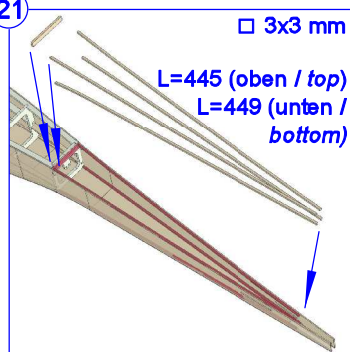
Setzen Sie die 3-teiligen Rumpf-Seitenteile mit dem Innengerüst zusammen. Achten Sie darauf, dass die rechte und die linke Rumpfseite unterschiedlich sind (18). Danach wird der 5-teilige Rumpfboden unter die Seitenteile geleimt. Verstärken Sie den Rumpfkanten innen mit Balsaleisten (20), (21) und setzen Sie den Abstützungsspann ein (22).

Assemble the 3-part fuselage side parts with the inner frame. Note that the right and left fuselage sides are different from each other (18). Then the 5-piece fuselage bottom is glued underneath the side panels (19). Reinforce the inside edges of the fuselage with balsa strips (20), (21) and insert the support frame (22).

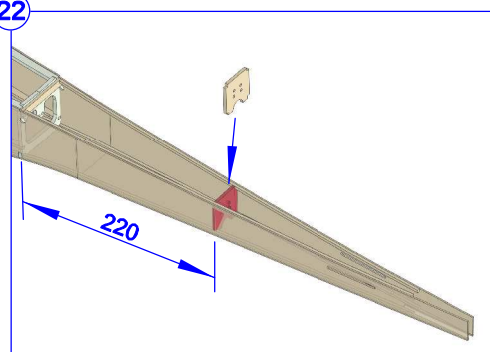
20

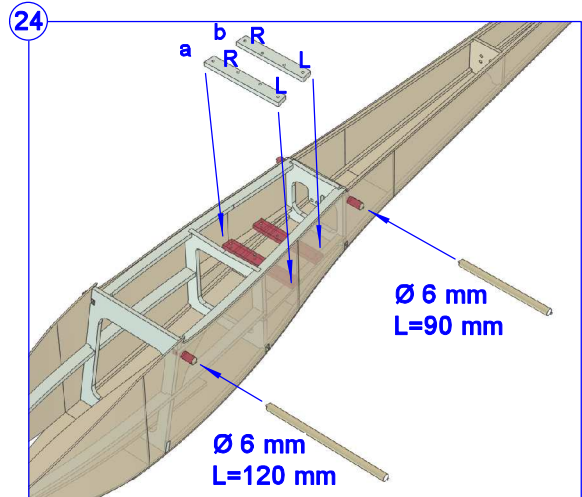
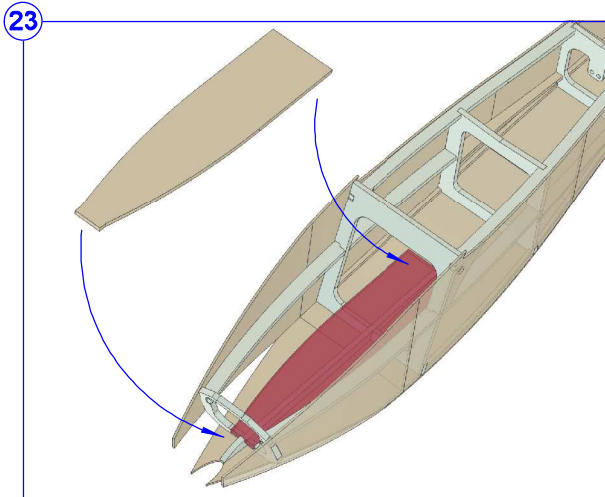


21



22



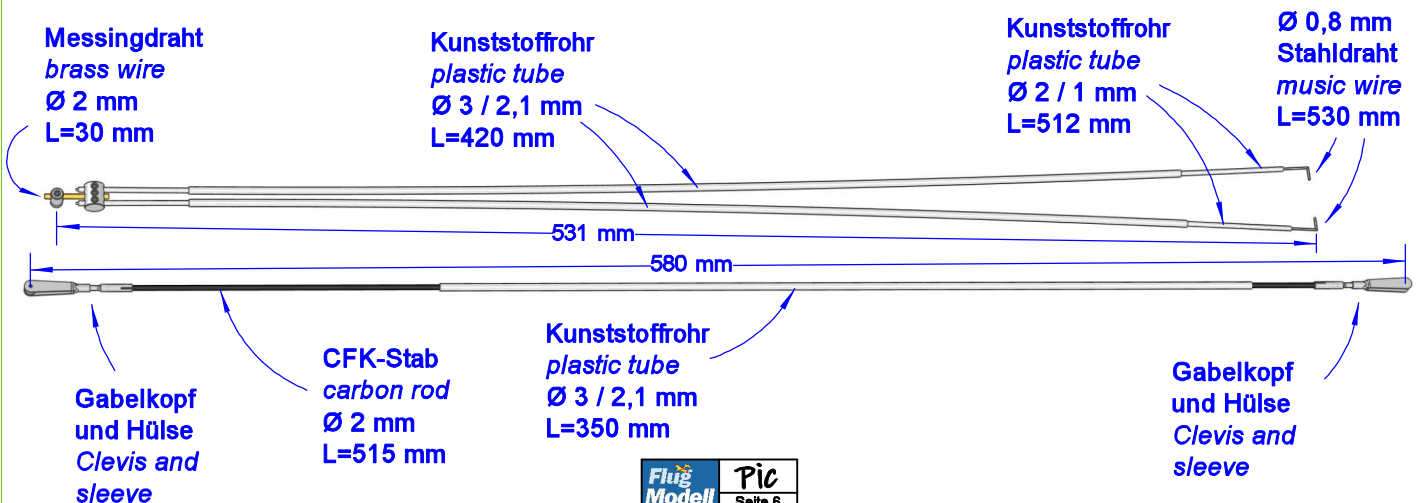
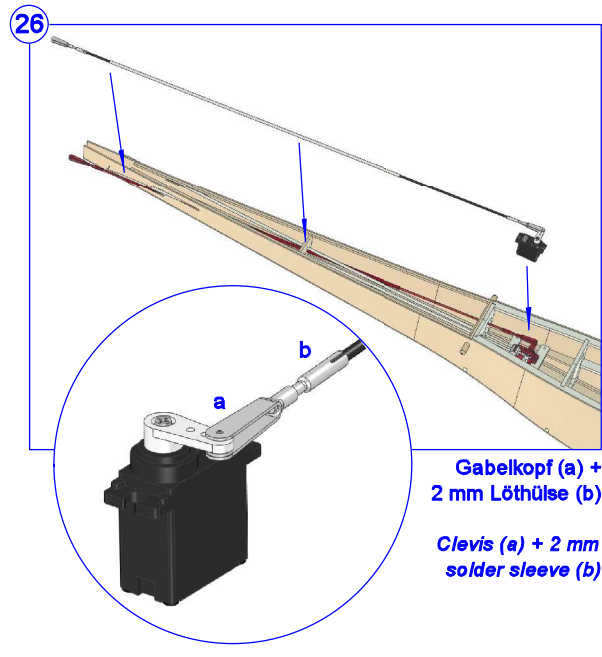
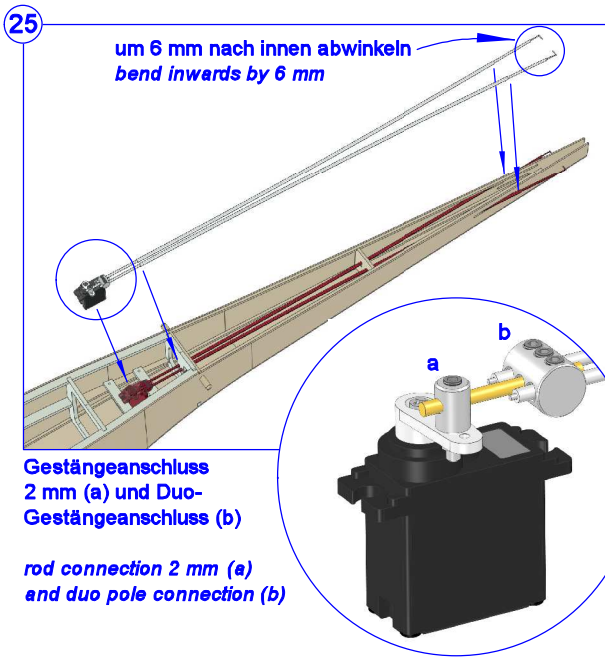


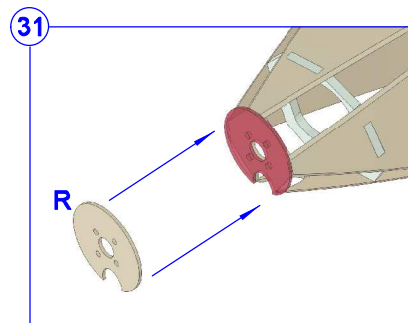
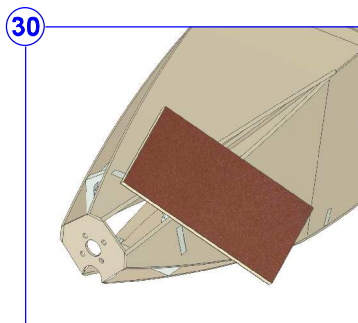
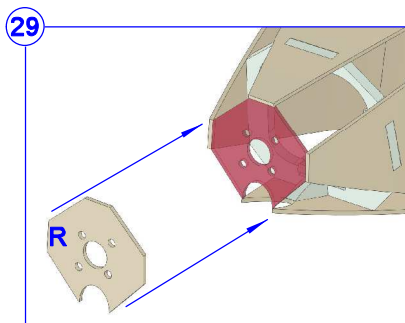
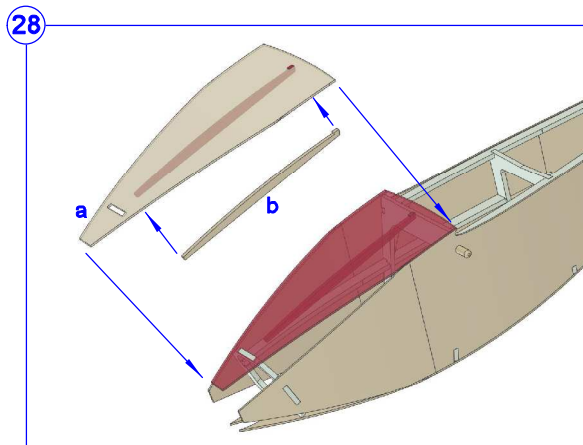
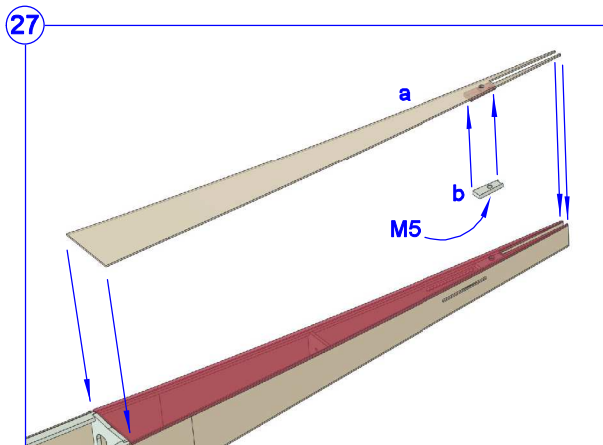
Das Akkubrett wird auf den Längsgurt (17)h gesetzt. Auf die Längsurte (17)e legen Sie zunächst die Servohaltebrettchen ab, deren exakte Position wir erst in Bauschritt (25) und (26) ermitteln. Setzen Sie auch die Gummiring-Haltedübel im Rumpf ein.

Tip: sie müssen nicht zwangsweise verleimt werden. Für einen kompakteren Transport können sie auch entnehmbar bleiben.

The battery board is placed on the longitudinal belt (17)h. First place the servo holding boards on the longitudinal straps (17)e, the exact position of which we will only determine in construction steps (25) and (26). Also insert the rubber ring retaining dowels into the hull.

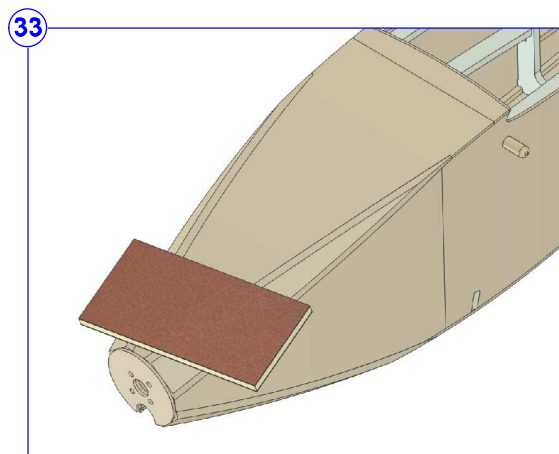
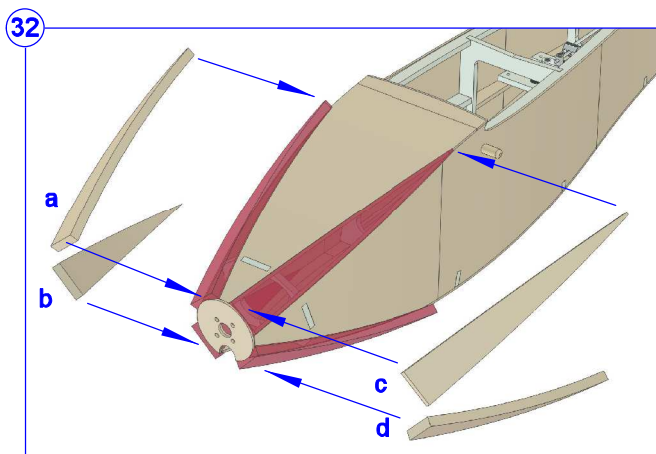
Tip: they do not necessarily have to be glued. They can also remain removable for more compact transport.





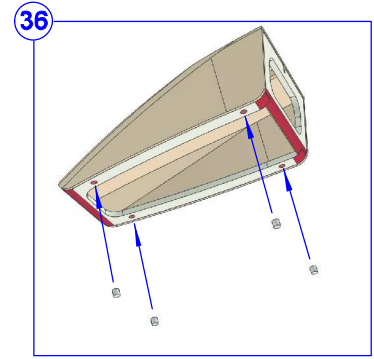
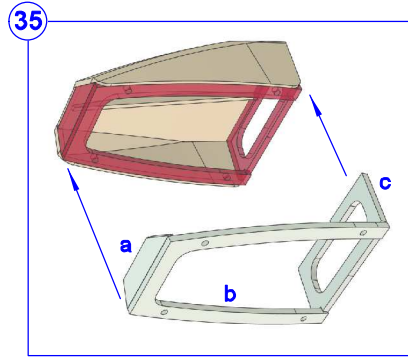
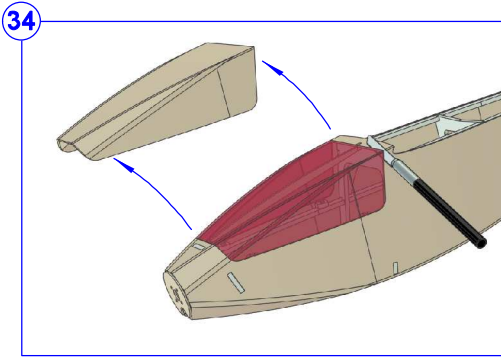
Bauteil (27)b mit M5 Gewinde versehen und unter das Rumpfrückenteil kleben. Dann den Rumpfrücken auf den Rumpf setzen. Konturrippe (28)b unter den vorderen Rumpfdeckel leimen, damit dieser die benötigte Wölbung erhält und am vorderen Rumpfbereich eingesetzt werden kann. Der innere Motorspant (29) wird nun ZWISCHEN die Rumpfwände geleimt. Kanten (30) schräg beischießen und vorderen Motorspant bündig ansetzen. Bei den Motorspanten auf die korrekte Ausrichtung (R/L) achten!

Provide component (27)b with an M5 thread and glue it under the rear part of the fuselage. Then put the back of the torso on the torso. Glue the contour rib (28)b under the front fuselage cover so that it has the required curvature and can be installed onto the front fuselage area. The inner motor bulkhead (29) is now glued BETWEEN the fuselage walls. Sand down the edges (30) at an angle and position the front engine bulkhead flush. Pay attention to the correct alignment (R/L) of the motor bulkheads!



Die vier Schrägeile (32)a-d ansetzen (sie besitzen unterschiedliche Abmessungen!) und den vorderen Rumpfbereich in einen Übergang von eckig (Flügelauflage) zu rund (Motorspant) verschleifen. Tipp: bei installiertem Motor und aufgesetztem Spinner gelingt die Schleifarheit am Übergang dort am saubersten.

Attach the four inclined parts (32)a-d (they have different dimensions!) and grind the front fuselage area into a transition from angular (wing support) to round (motor bulkhead). Tip: with the motor installed and the spinner attached, the transition work will be cleanest there.

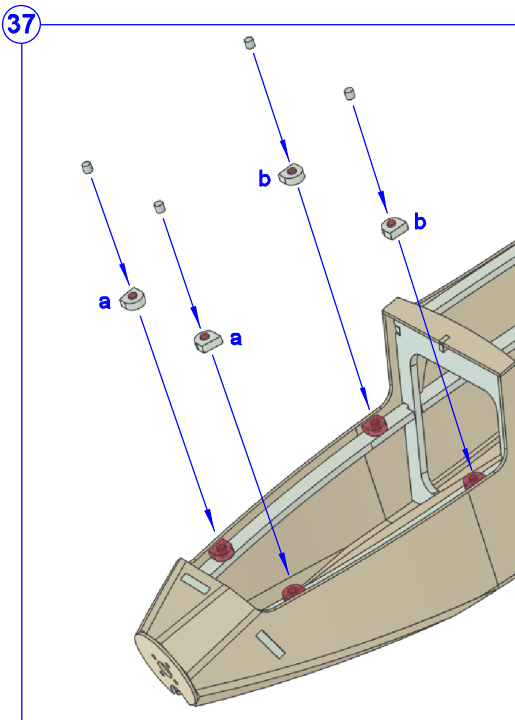
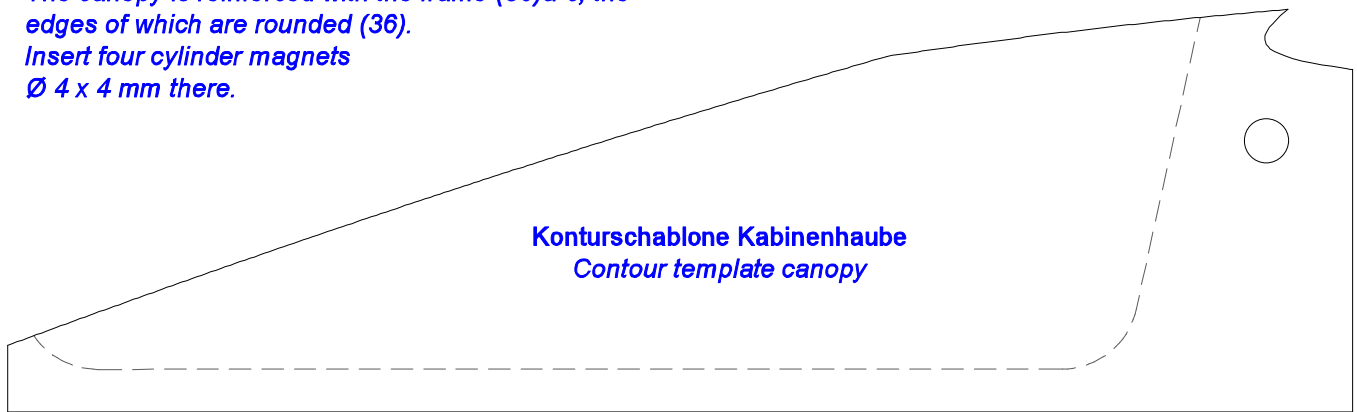


Die Kabinenhauben-Kontur anhand der Schablone beidseitig identisch und möglichst präzise anzeichnen. Dann mit einem Skalpell oder einer Tamyia-Säge das Bauteil aus dem Rumpf heraustrennen (34). Die Kabinenhaube wird mit dem Spantengerüst (35)a-c verstärkt, dessen Kanten verrundet werden (36). Setzen Sie vier Zylindermagnete $\varnothing 4 \times 4$ mm bündig ein.

Using the template, mark the canopy contour identically on both sides and as precisely as possible. Then use a scalpel or a Tamyia saw to cut the component out of the hull (34).

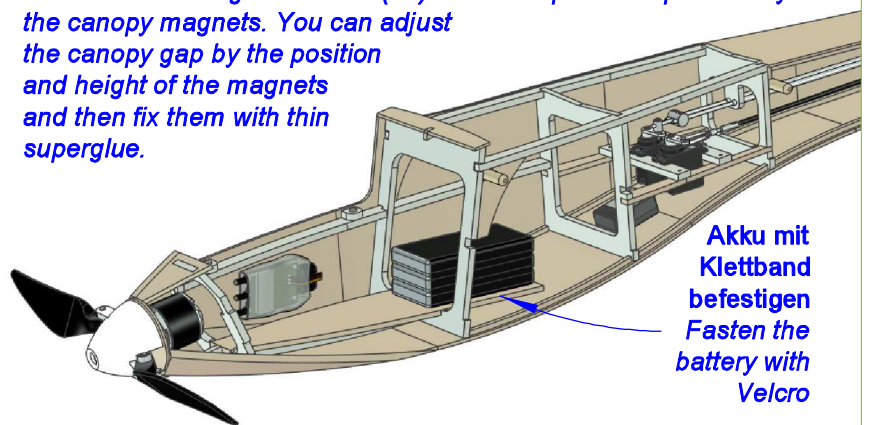
The canopy is reinforced with the frame (35)a-c, the edges of which are rounded (36).

Insert four cylinder magnets $\varnothing 4 \times 4$ mm there.



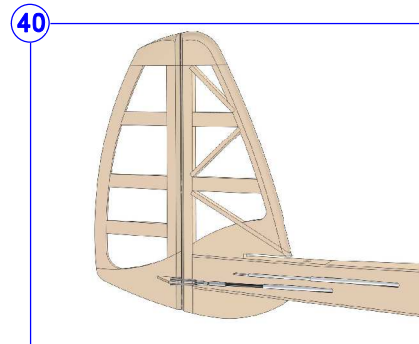
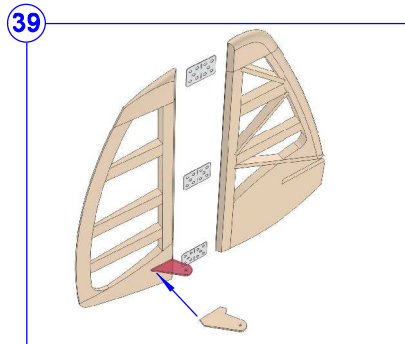
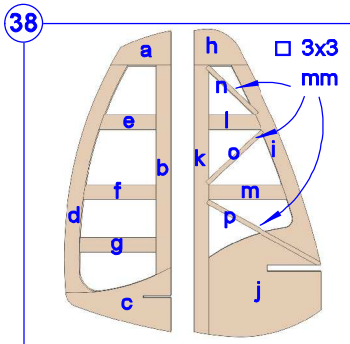
Setzen Sie die vier Magnet-Aufnahmen (37)a+b an jene Position, die von den Kabinenhauben-Magneten vorgegeben wird. Sie können den Kabinenhaubenspalt durch die Position und Höhe der Magneten einstellen und diese bei abgenommener Haube mit dünnflüssigem Sekundenkleber fixieren.

Place the four magnet mounts (37)a+b in the position specified by the canopy magnets. You can adjust the canopy gap by the position and height of the magnets and then fix them with thin superglue.



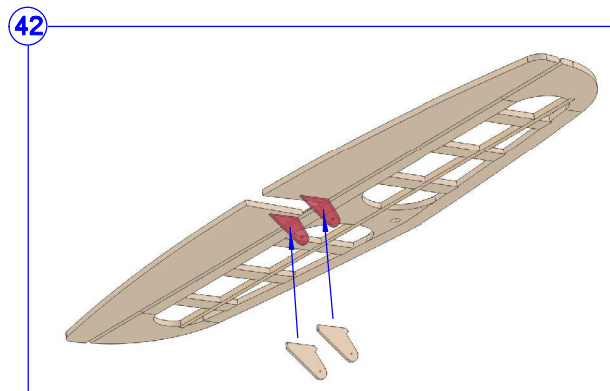
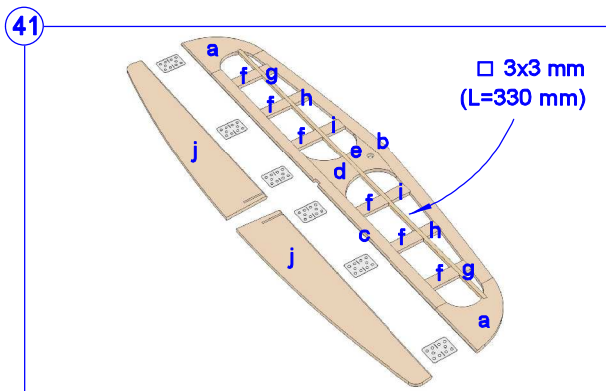
Einbaupositionen der elektronischen Komponenten
Installation positions of the electronic component

Aussparung schafft Platz für die Motorkabel
Recess creates space for the motor cables



Das Seitenleitwerk besitzt 6 mm Dicke und wird aus 13 Teilen (38)a-n zusammengesetzt. Anschließend kommen drei Diagonalleisten (38)n-p aus 3x3 mm Kiefernholz hinzu. Schleifen Sie das Ruder nach hinten spitz aus (Reststärke von etwa 1 mm) und schlagen Sie es mit Vlies-Scharnieren an. Achtung: das Ruderhorn (39) weist nach rechts! Anschließend wird das Seitenleitwerk von hinten in den Rumpf eingeschoben und dort rechtwinklig zur Flügelauflage verleimt. Beachten Sie bei der HLW-Passung, dass später noch Folie hinzu kommt!

The rudder is 6 mm thick and is made up of 13 parts (38)a-n. Then three diagonal strips (38)n-p made of 3x3 mm pine are added. Grind the control surface of the rudder to a point towards the back (remaining thickness of about 1 mm) and attach it with CA hinges. Caution: the control horn (39) points to the right! The rudder unit is then slid into the fuselage from behind and glued there at right angles to the wing support. With the fits of the elevator tailplane, please note that foil will be added later!

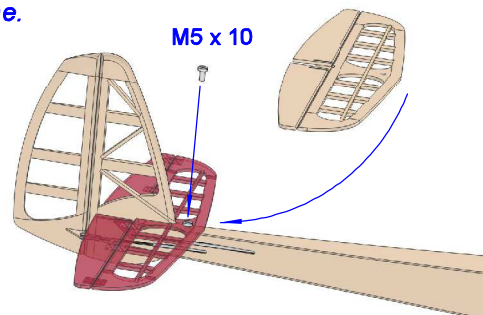


Verfahren Sie beim 3 mm starken Höhenleitwerk auf ähnliche Weise. Es erhält einen 3 x 3 mm Kiefernstab als Holm. Die beiden Ruderblätter müssen nicht unbedingt spitz verschliffen werden. Setzen Sie die zwei Ruderhörner exakt identisch ein, damit die Hebellängen gleich sind.

Proceed in a similar way for the 3 mm thick tailplane. It gets a 3 x 3mm pine stick as the spar. The two rudder blades do not necessarily have to be sharpened to a point. Insert the two control horns exactly the same so that the lever lengths are the same.

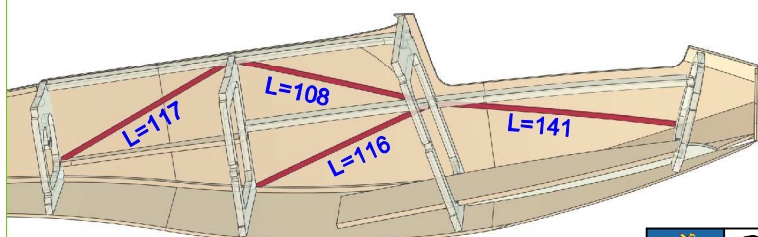
Das Höhenleitwerk kann nun von vorn ins Seitenleitwerk eingeschoben, mit einer Kunststoffschraube M5 fixiert und mit den L-förmig abgekröpften Drähten von außen angelenkt werden. Diese werden nur eingesteckt und halten durch ihre leichte Vorspannung.

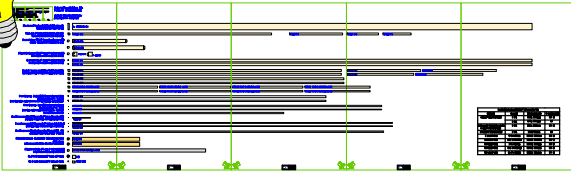
The tailplane can now be pushed into the rudder from the front, fixed with an M5 plastic screw and linked from the outside with the L-shaped bent wires. These are only inserted and hold due to their slight pretension.



Leimen Sie zur Verstärkung noch dort wo man den Rumpf bevorzugt greifen wird ein paar Diagonalgurte aus 3x3 mm Balsa von innen an die Rumpfsseitenwand.





























For reinforcement, glue a couple of diagonal straps made of 3x3 mm balsa from the inside to the fuselage side wall where you prefer to grip the fuselage.

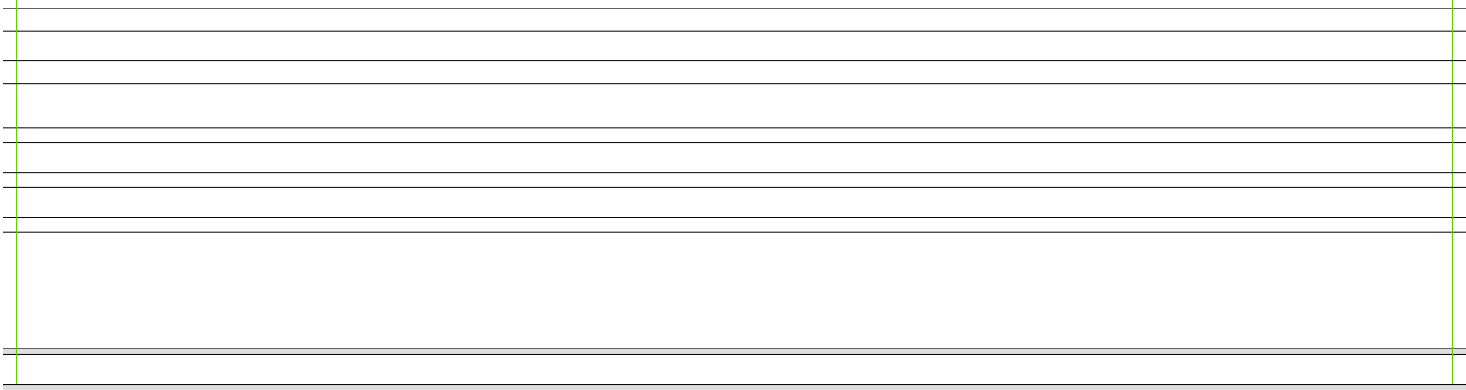
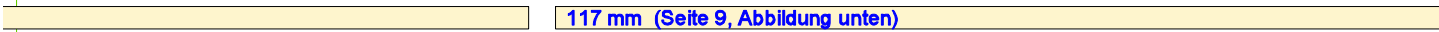
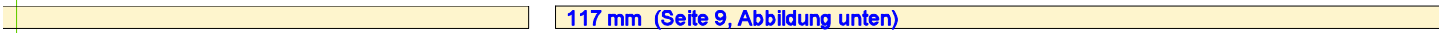
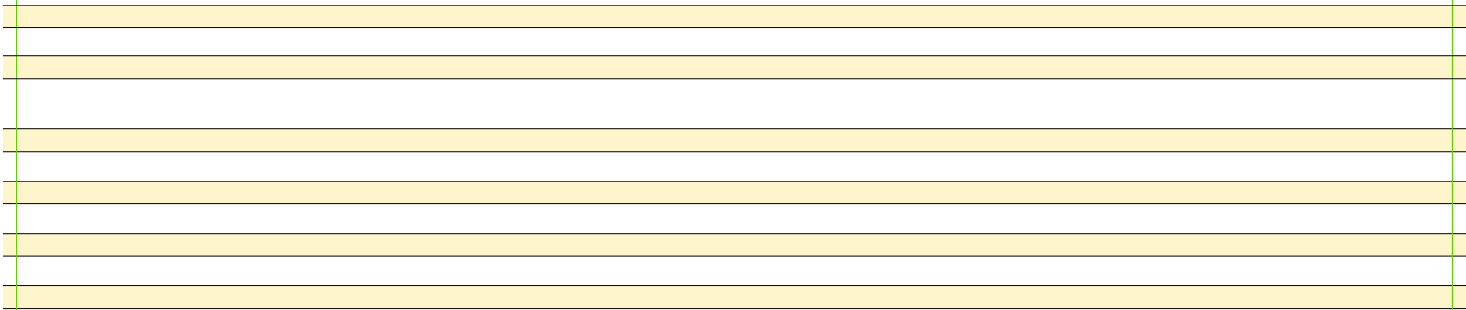
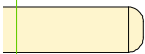
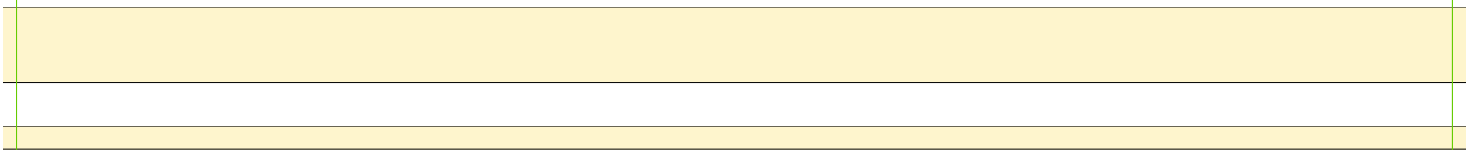


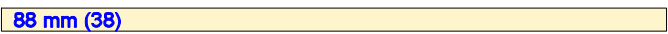


Materialliste und Abläng-Hilfe:
Seiten 10-14 zusammenfügen

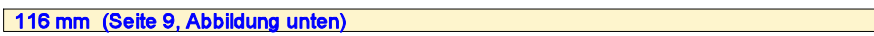
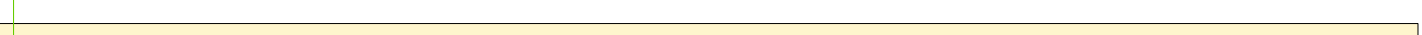
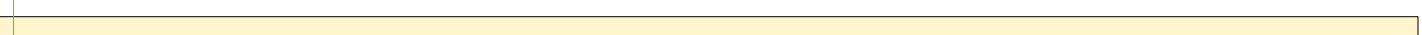
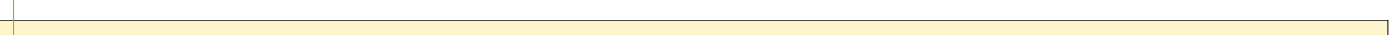
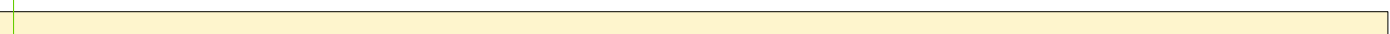
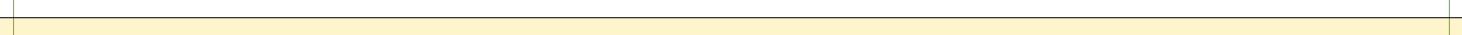
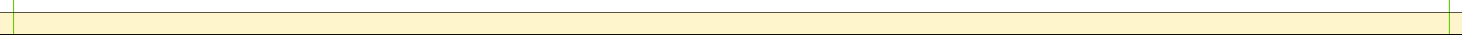
material list and cutting help:
join pages 10-14 together

10 x 2 mm Vierkanteleiste Kiefer (Holmgurte) <i>square bar pine (spar straps)</i>		4x 760 mm (1), (8)
3 x 3 mm Vierkantstab Kiefer (Leitwerke) <i>square bar pine (control surfaces)</i>		330 mm (41)
Gummiring-Dübel, Ø 6 mm Buchenrundstab <i>rubber ring dowel (round beech rod)</i>		90 mm (24)
		120 mm (24)
Flügelsteckdübel, Ø 6 mm Buchenrundstab <i>2x wing dowels (round beech rod)</i>		8 mm (4)  8 mm (4)
Nasenleisten, Ø 3 mm Buchenrundstab <i>leading edge strips (round beech rod)</i>		760 mm (9)
		760 mm (9)
Rumpf-Innenverstärkung, □ 3x3 Balsaleisten <i>internal fuselage reinforcement (balsa strips)</i>		445 mm (21)
		445 mm (21)
		449 mm (21)
		449 mm (21)
		141 mm (Seite 9, Abbildung unten)
		141 mm (Seite 9, Abbildung unten)
Bowdenzug-Außenhülle Höhenrudieranlenkung, Kunststoffrohr Ø 3 / 2,1 mm <i>bowden cable outer sleeve, elevator linkage (plastic tube)</i>		420 mm (6)
		420 mm (6)
Bowdenzug-Innenhülle Rudieranlenkungen, Kunststoffrohr Ø 2 / 1 mm <i>bowden cable outer sleeve, ruder + elevator linkages (plastic tube)</i>		512 mm (6)
		512 mm (6)
		350 mm (6)
Gestängeanschluss Höhenruder, Ø 2 mm Messingdraht <i>pushrod connection elevator (brass wire)</i>		30 mm (6)
Bowdenzugseele Höhenruder, Ø 0,8 mm Stahldraht <i>bowden cable core, elevator (steel wire)</i>		530 mm (6)
		530 mm (6)
Gestängeanschluss Seitenruder, Ø 2 mm CFK-Stab <i>pushrod connection, rudder (cfk rod)</i>		515 mm (6)
Flügelsteckungs-Aufnehmerrohr (Messing oder Alu) Ø 6 / 5 mm <i>wing connection tube (brass or aluminium)</i>		111 mm (4)
		111 mm (4)
Flügelverbinder, Ø 5 mm Federstahldraht <i>wing connector, spring steel wire</i>		220 mm (Seite 4, Abbildung unten)
2x Neodymmagnet Ø 6 mm x H 6 mm		(4)
8x Neodymmagnet Ø 4 mm x H4 mm		(35), (36)



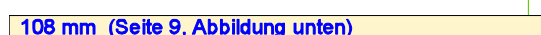
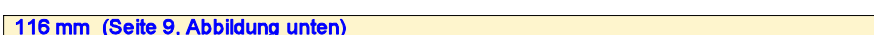


88 mm (38)



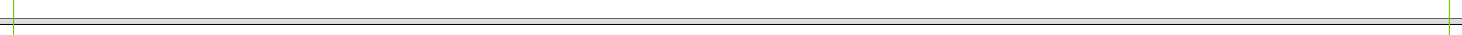
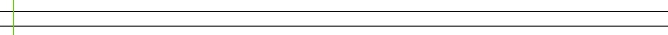
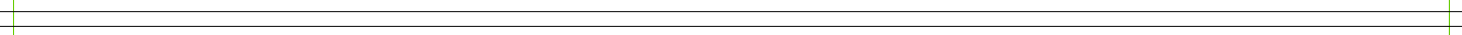
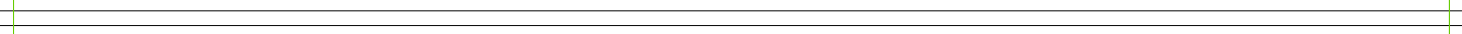
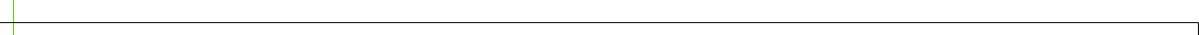
116 mm (Seite 9, Abbildung unten)

108 mm (Seite 9, Abbildung unten)



116 mm (Seite 9, Abbildung unten)

108 mm (Seite 9, Abbildung unten)



52 mm (38)

46 mm (38)

122 mm (20)

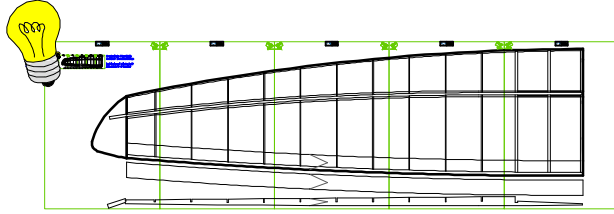
122 mm (20)

111 mm (20)

111 mm (20)

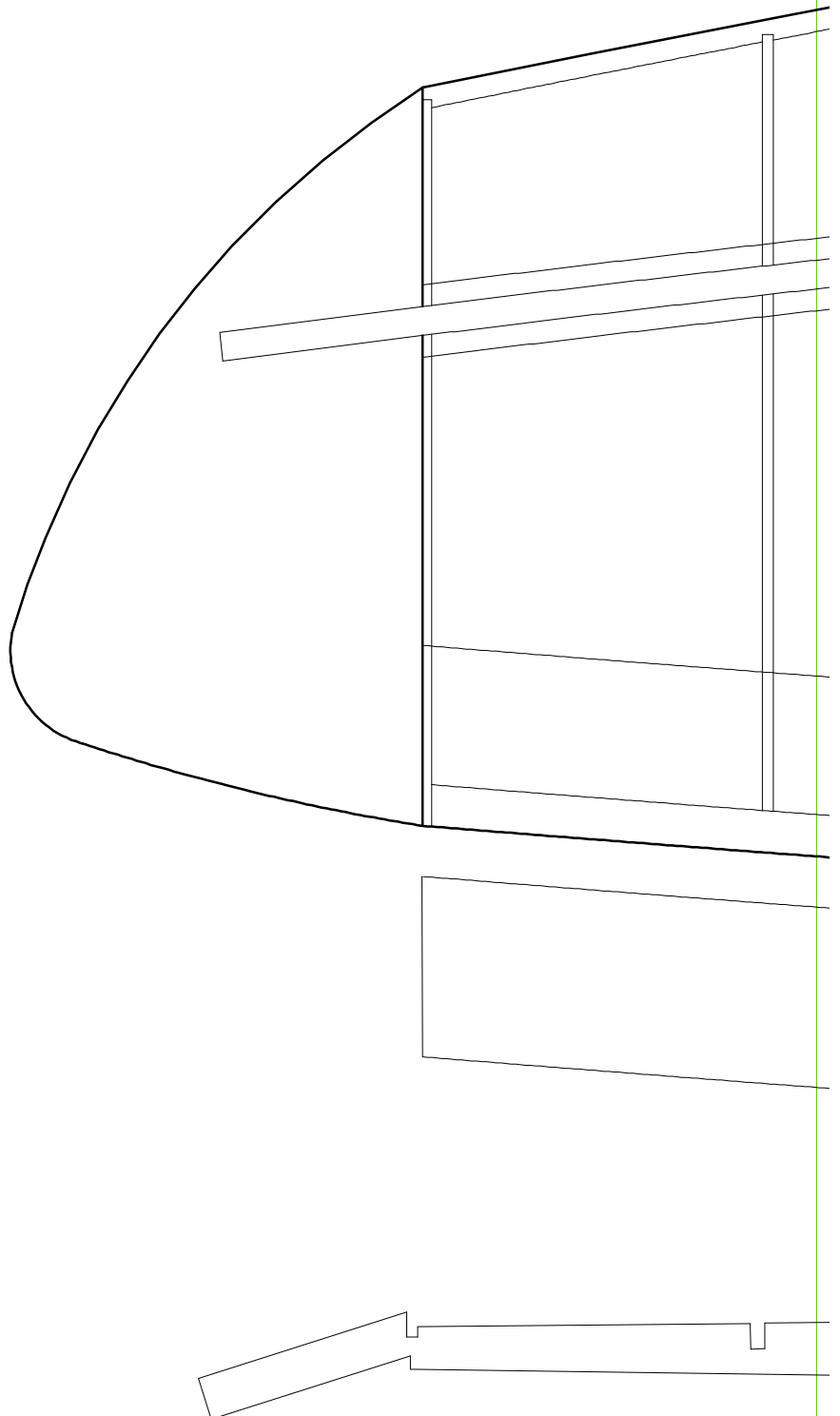
Auflistung der benötigten Plattenmaterialien

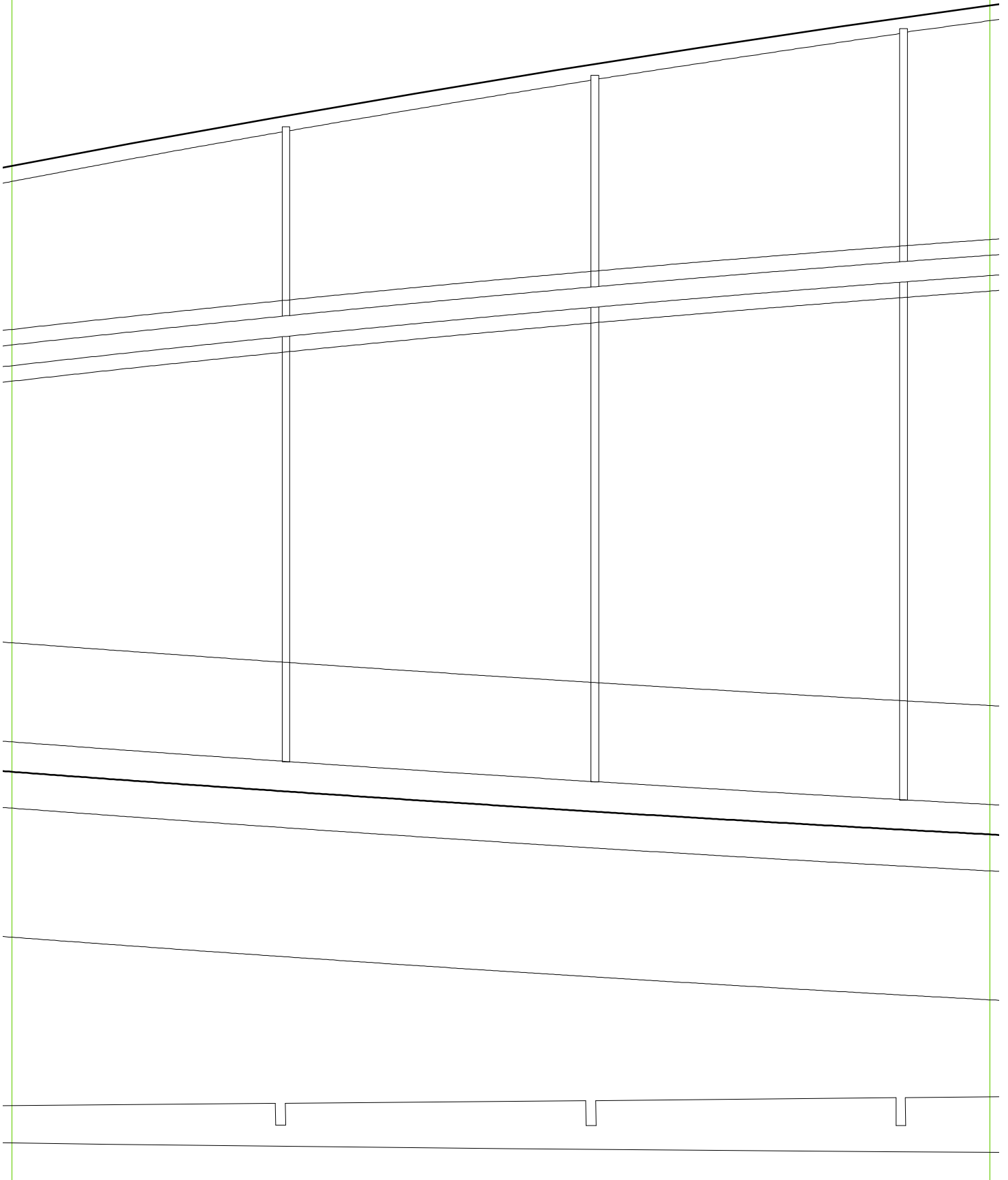
Material	Anzahl	Abmessungen	Bauplanseite
4 mm Pappelsperrholz	1 St.	500 x 250 mm	34-36
	1 St.	175 x 190 mm	37
Alternative für Kiefernholz: 2 mm Birkenperrholz	1 St.	500 x 150 mm	71-73
1,5 mm Birkenperrholz	1 St.	125 x 60 mm	37
1 mm Balsa	6 Brettchen	1000 x 100 mm	38-49
1,5 mm Balsa	4 1/2 Brettchen	1000 x 100 mm	50-64
2,0 mm Balsa	1 Brettchen	1000 x 100 mm	62-67
3,0 mm Balsa	1 1/2 Brettchen	1000 x 100 mm	65-70
6,0 mm Balsa	1/2 Brettchen	1000 x 100 mm	71-73



**Baubrett linke Flügelhälfte:
Seiten 15-19 zusammenfügen**

*building board left wing half:
join pages 15-19 together*



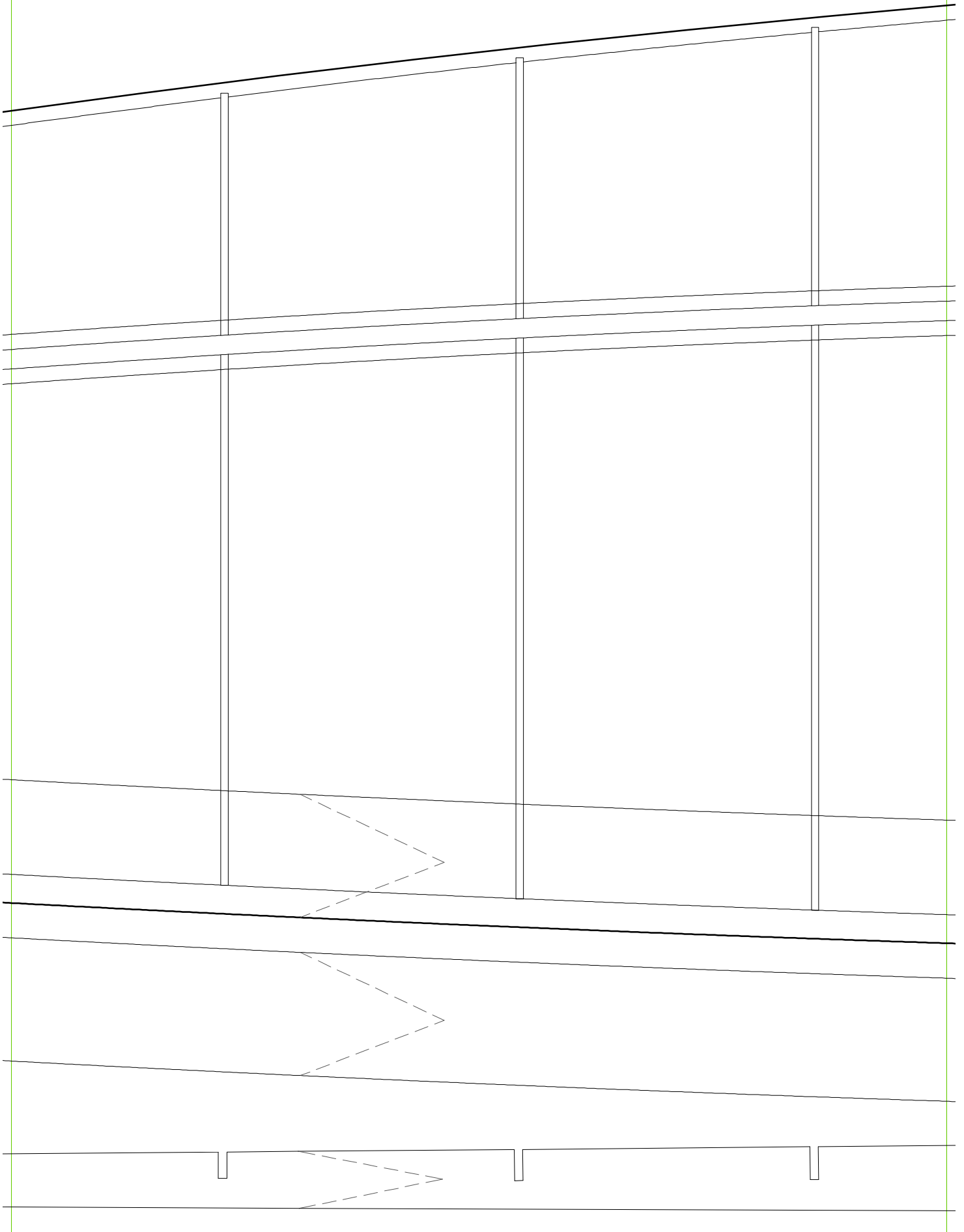


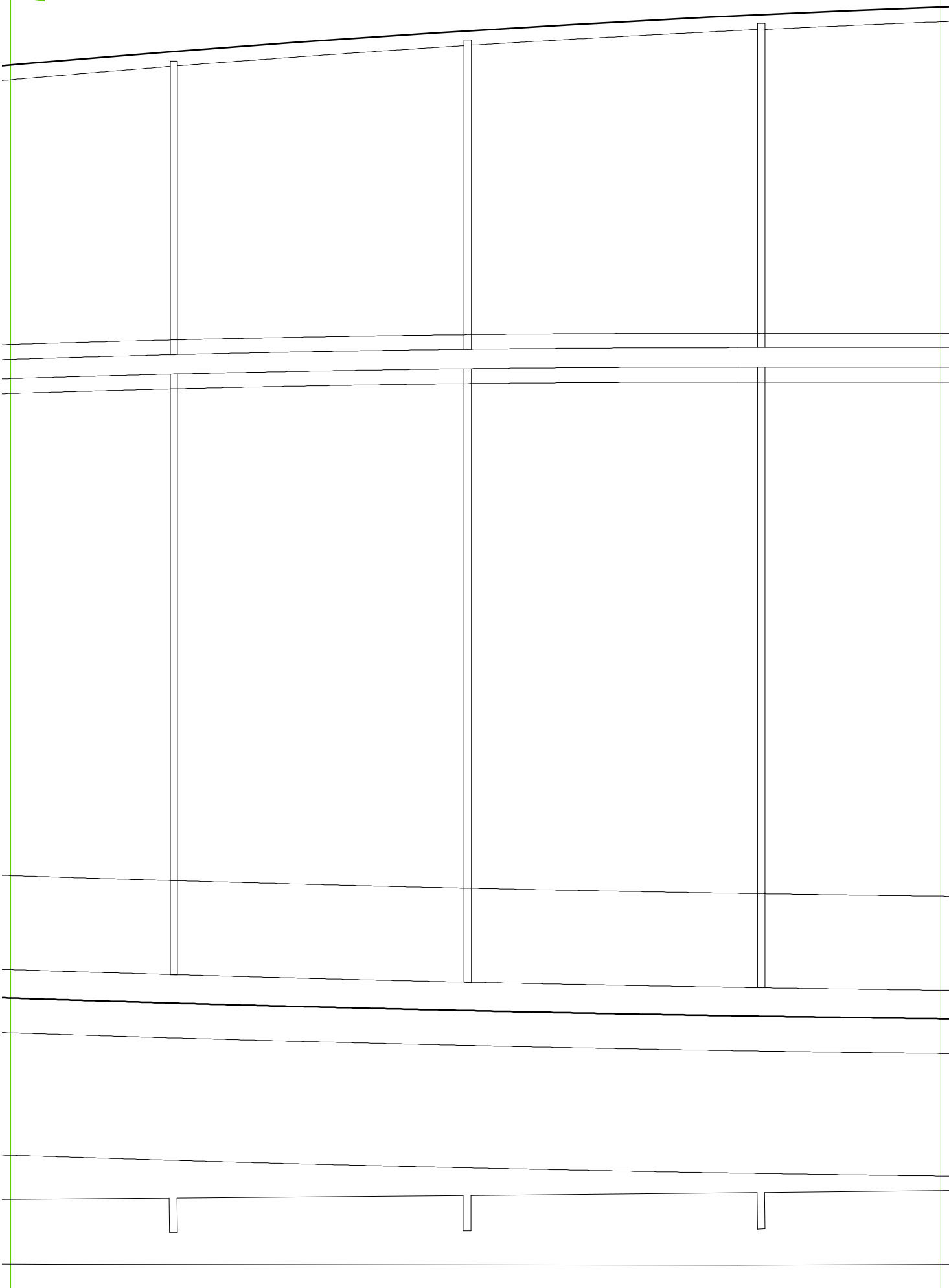


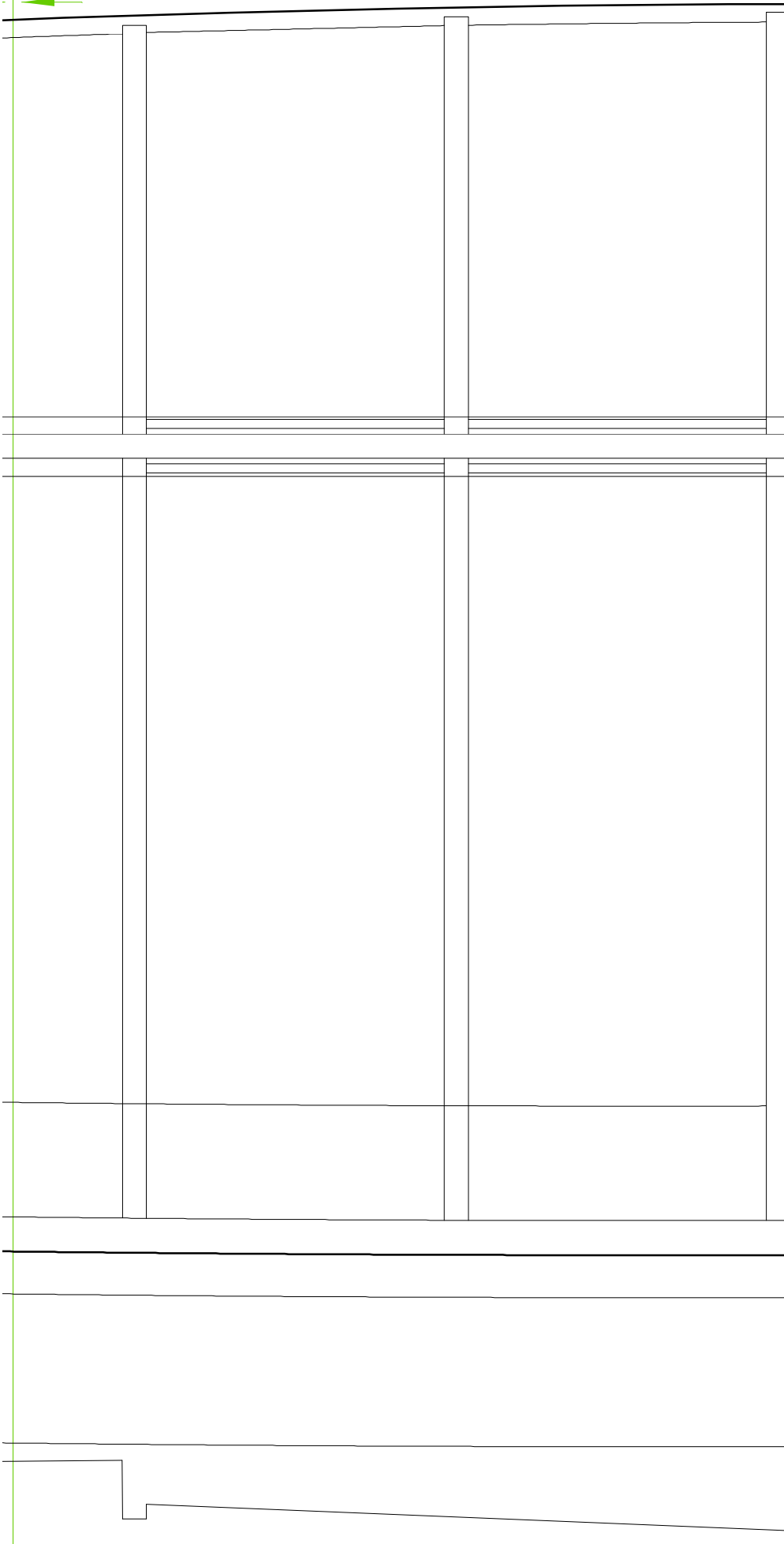
Seite 16

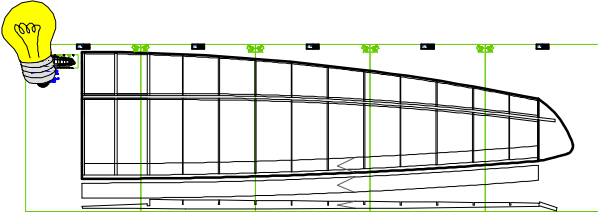


Seite 18



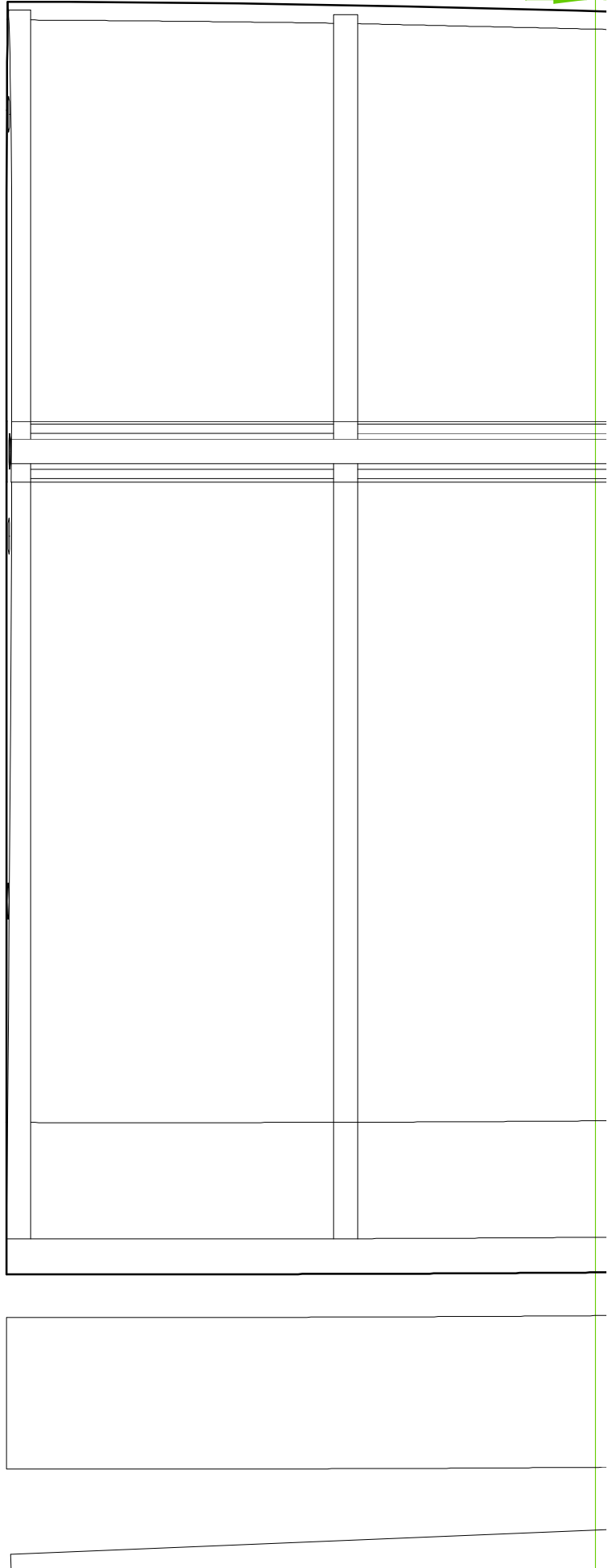


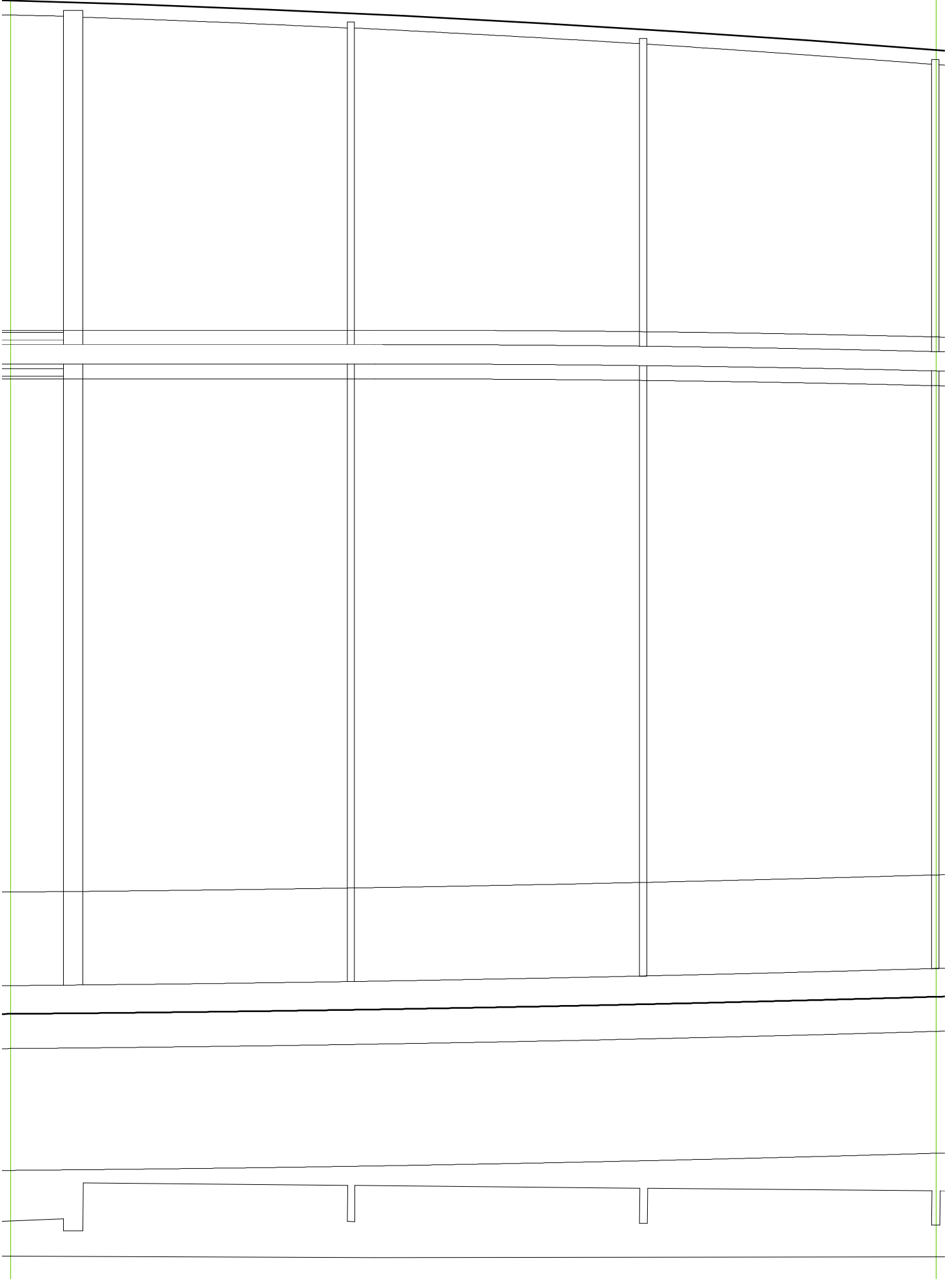


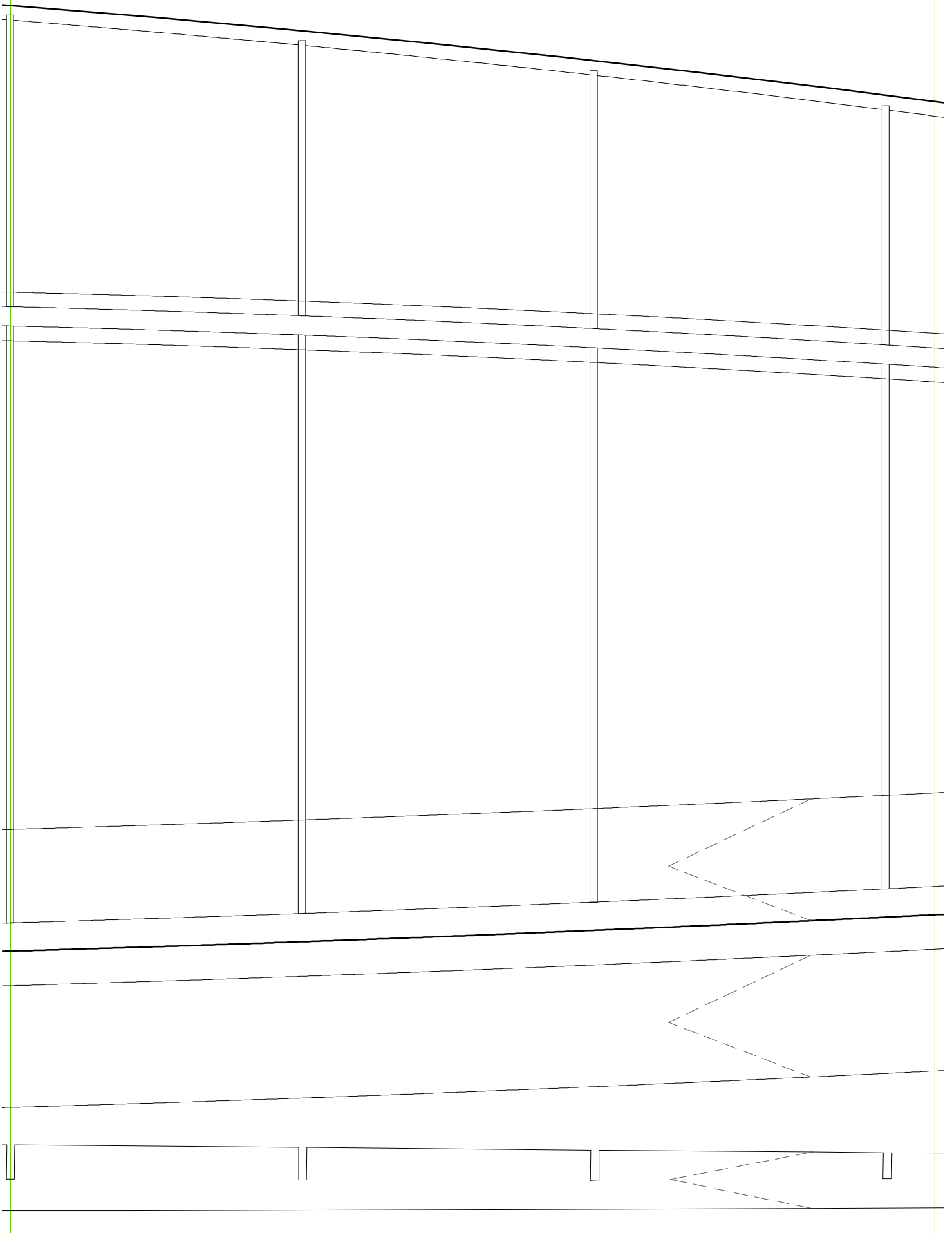


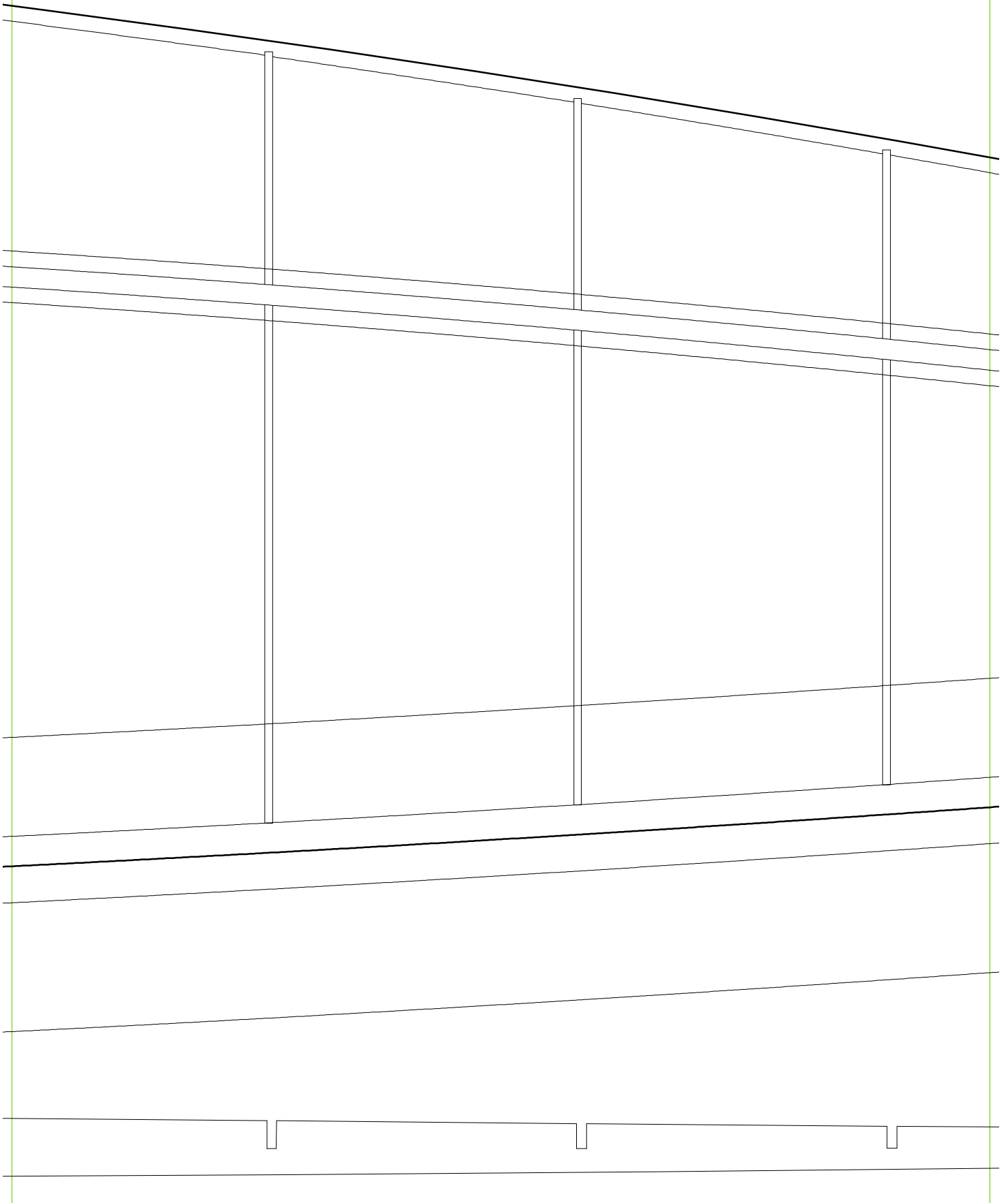
**Baubrett rechte Flügelhälfte:
Seiten 20-24 zusammenfügen**

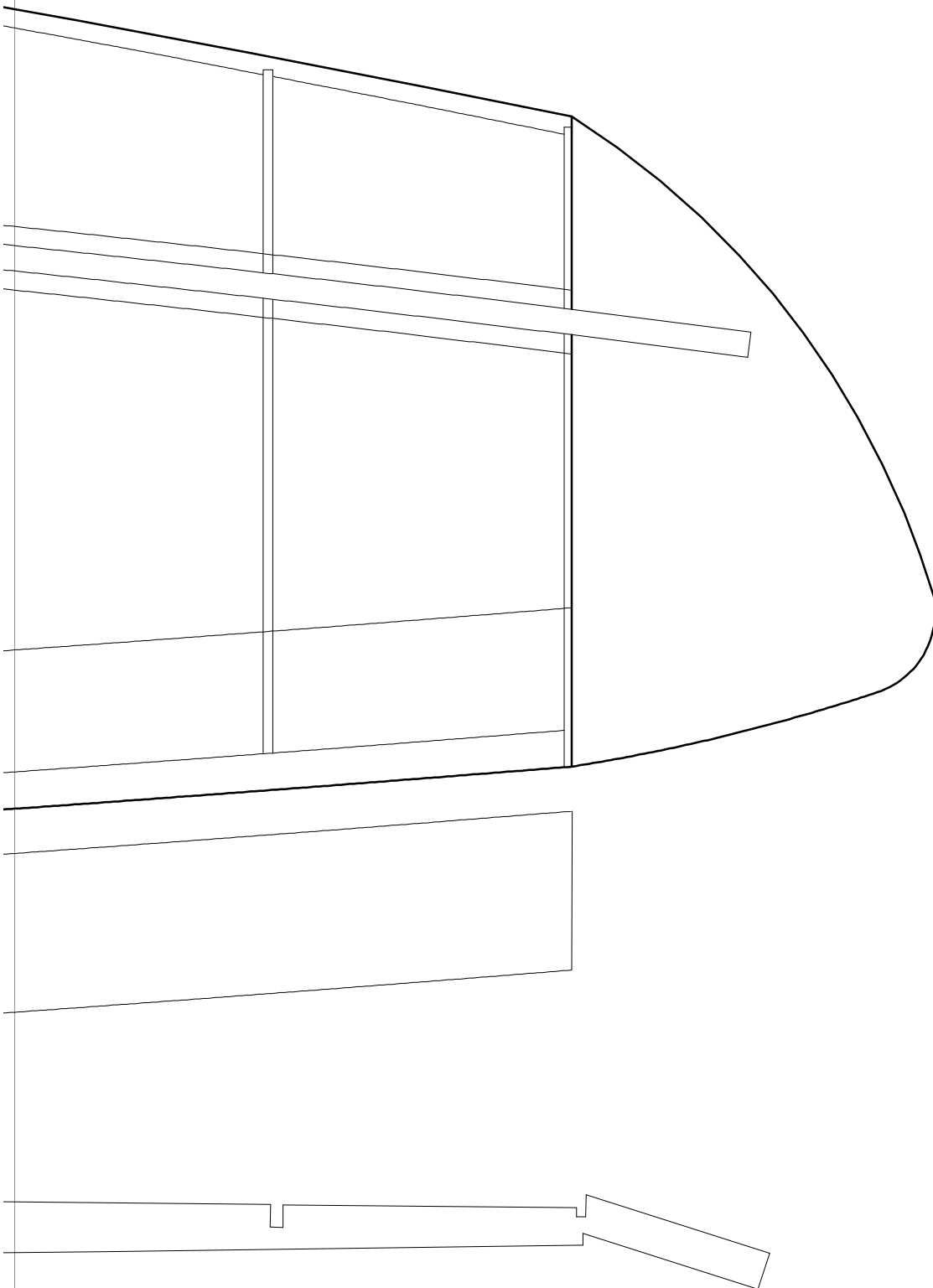
*building board right wing half:
join pages 20-24 together*











Masering

Masering

Masering

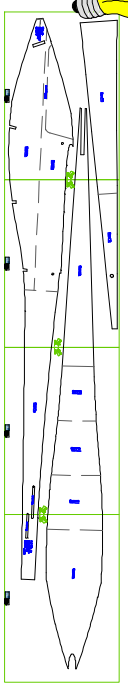
Seite 26

die rechte
Rumpfsseitenwand
ist vorne um 1,5
mm kürzer

Kablenhauben-Kontur

Rumpfbauweise:
Seiten 25-28 zusammenfügen

fuselage parts:
Join pages 25-28 together



Maserung

Maserung





Maserung



Maserung



Maserung



Maserung



Höhennuder





Seite 27

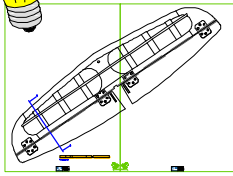
Seitenruder

Durchbruch für
Seitenruder NUR
AN RECHTER
Rumpelseitenwand!

Maserung

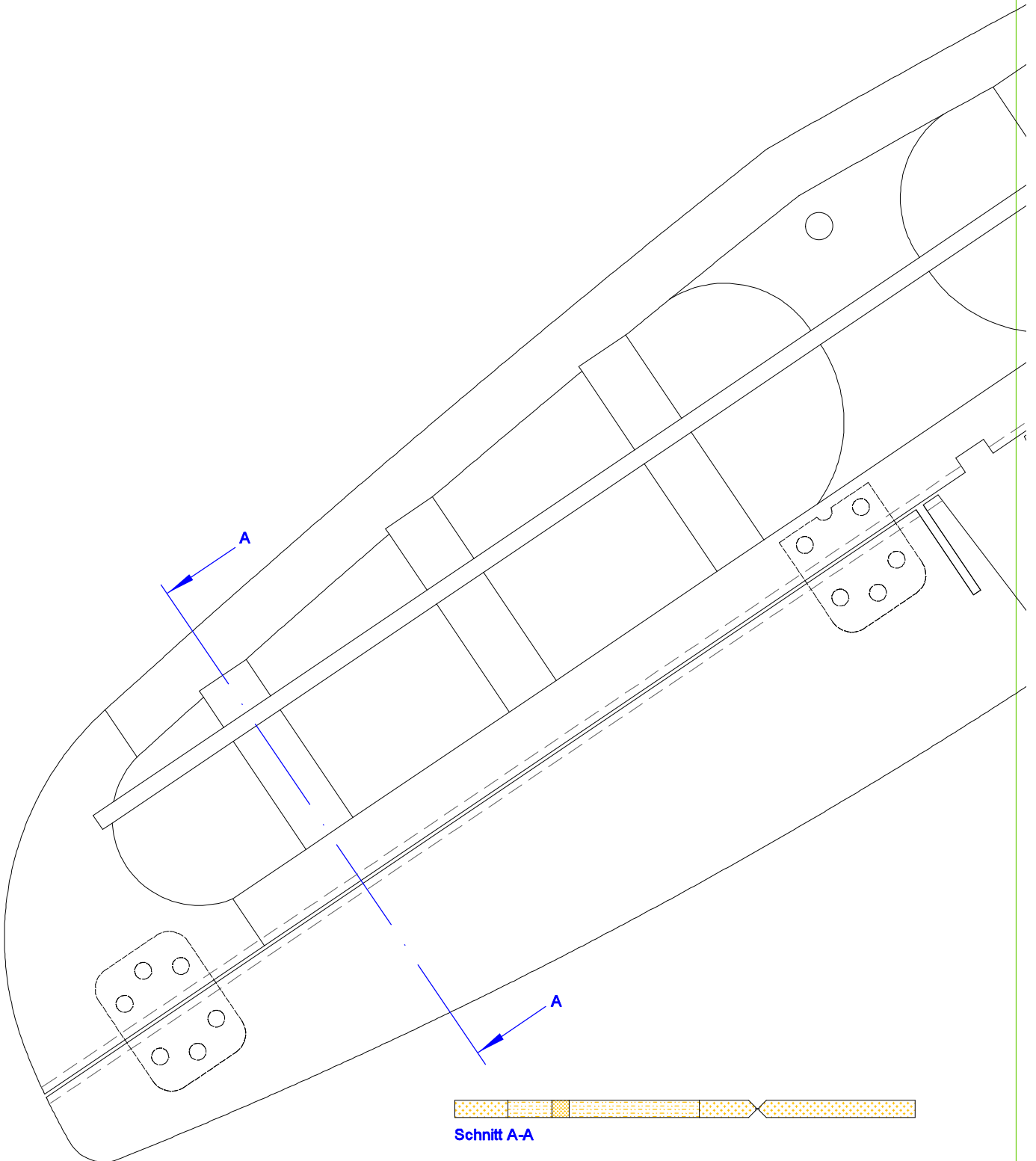
R

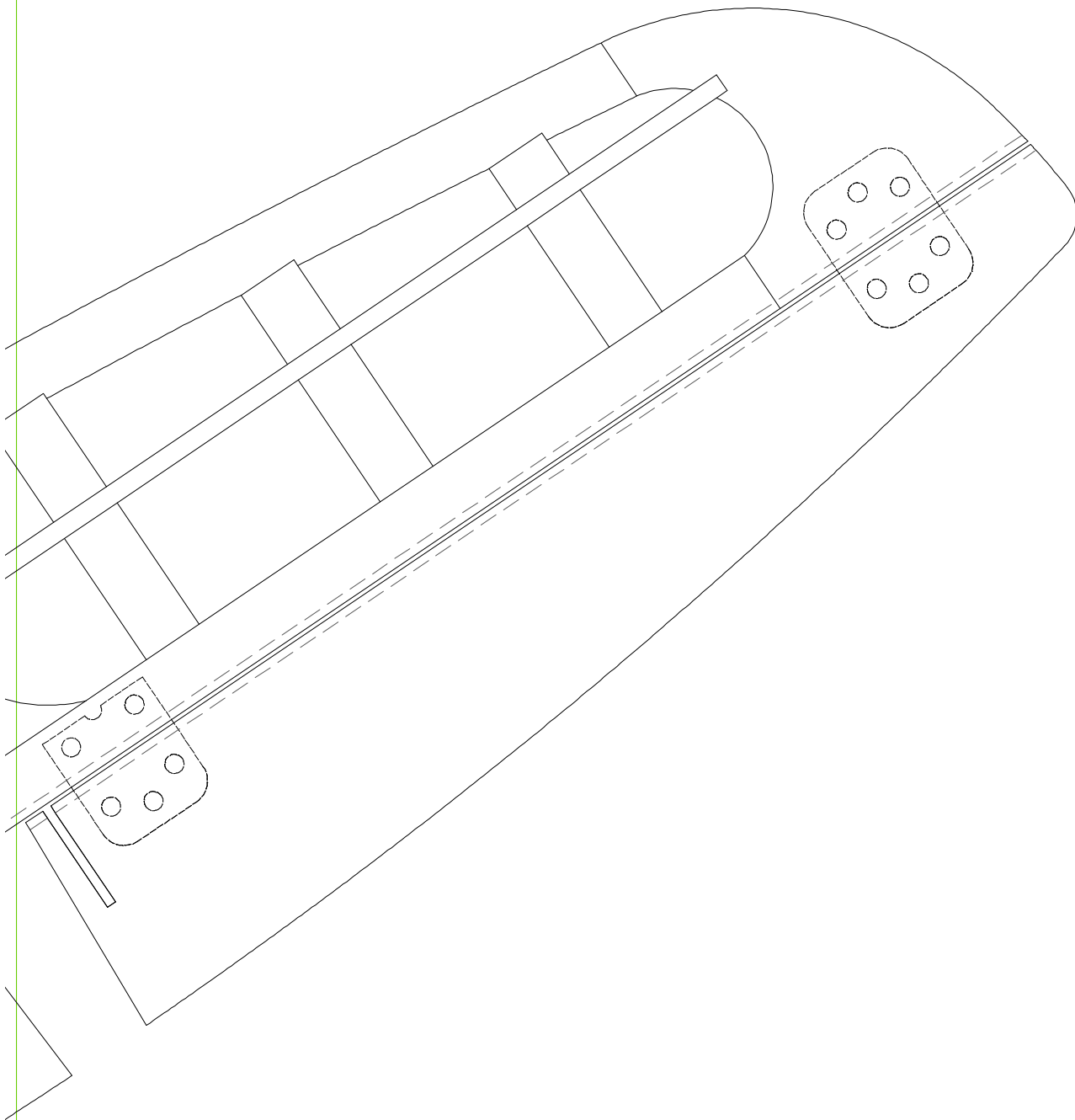
L



**Höhenleitwerk:
Seiten 29-30 zusammenfügen**

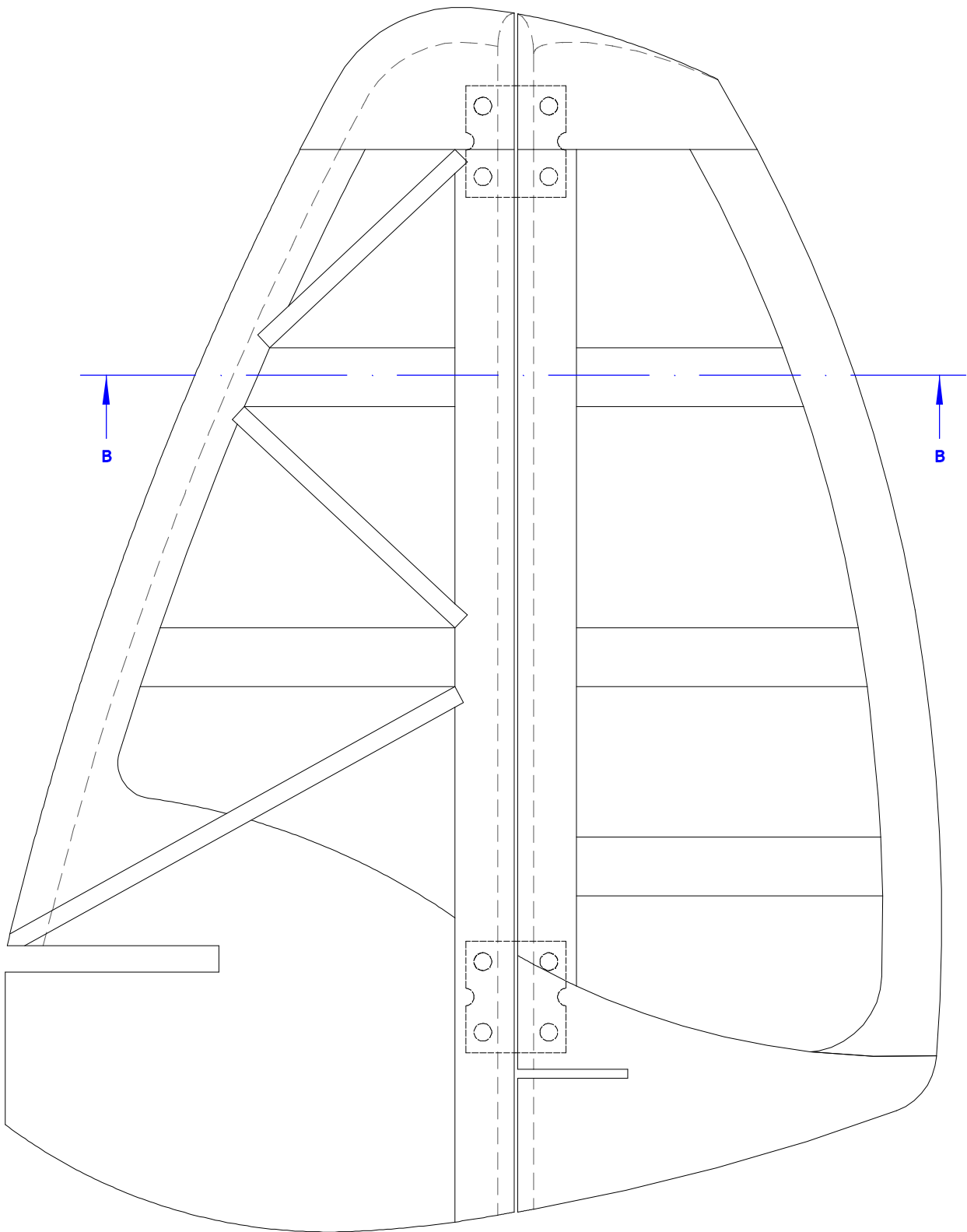
*elevator tailplane:
join pages 20-30 together*

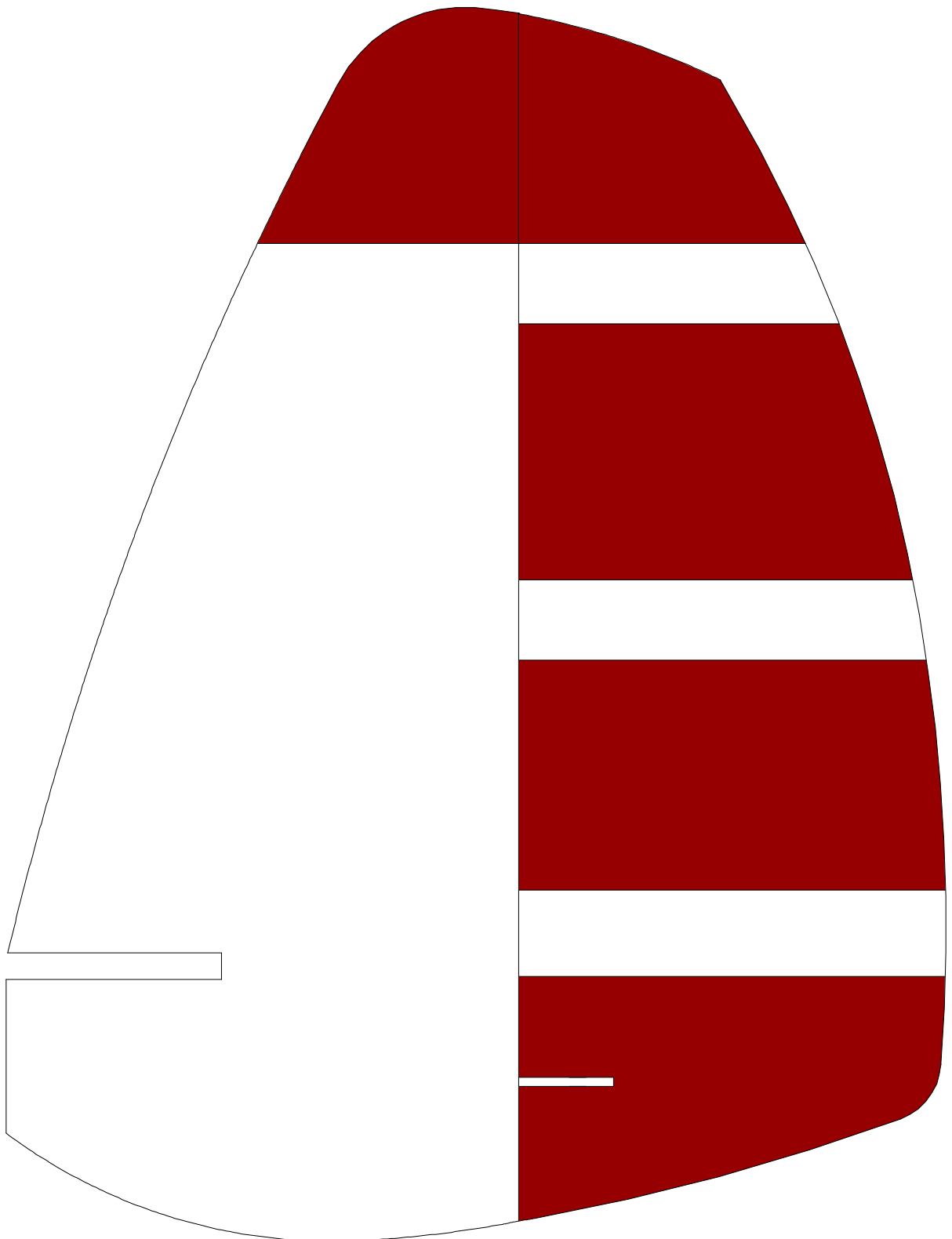


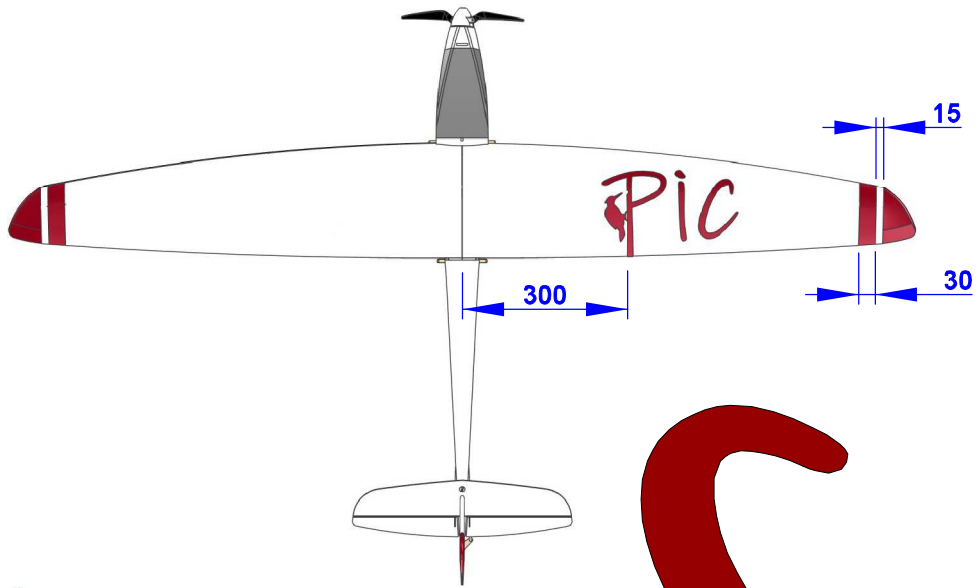


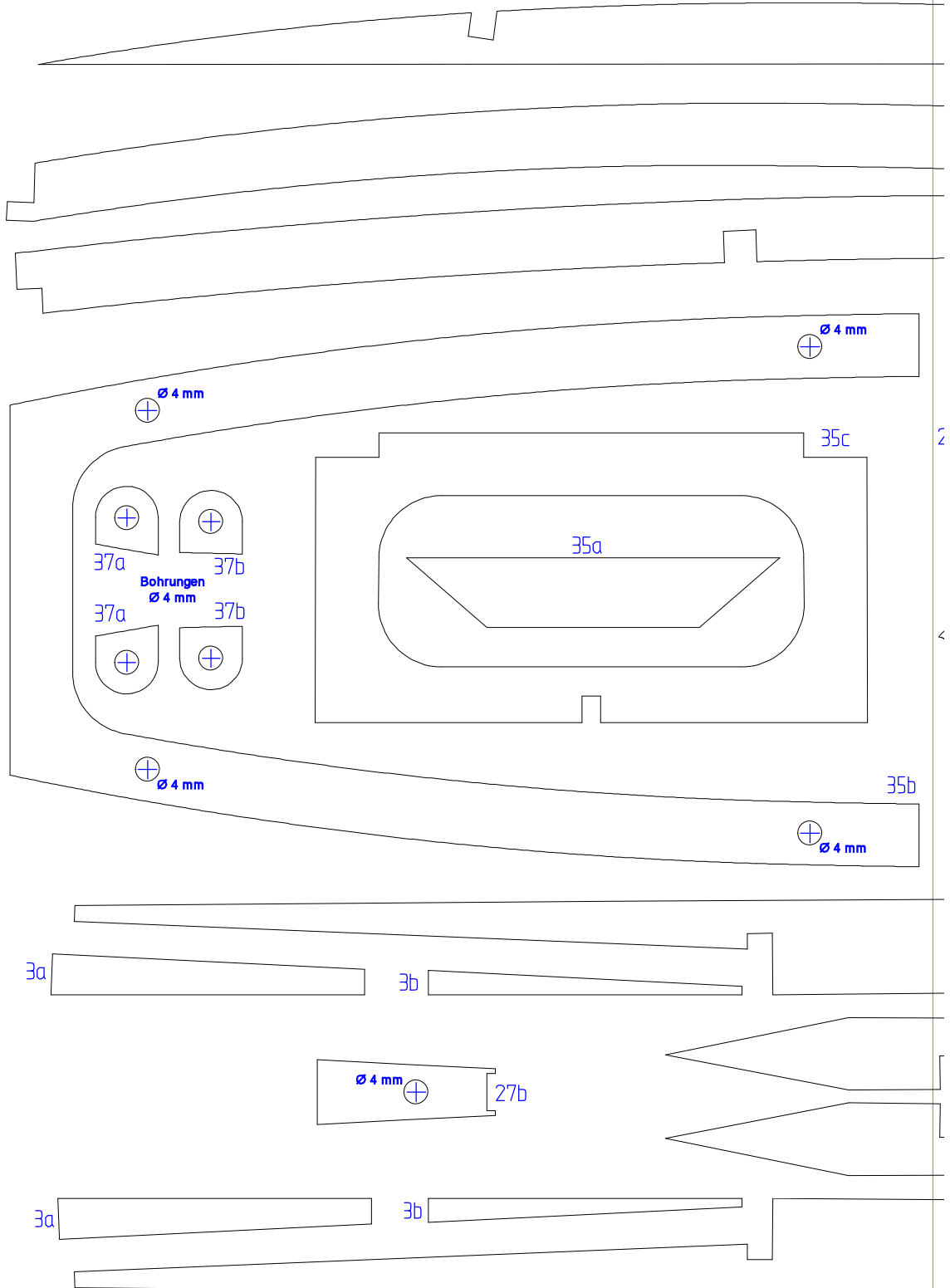
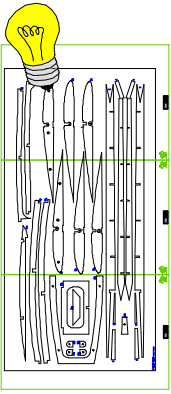


Schnitt B-B

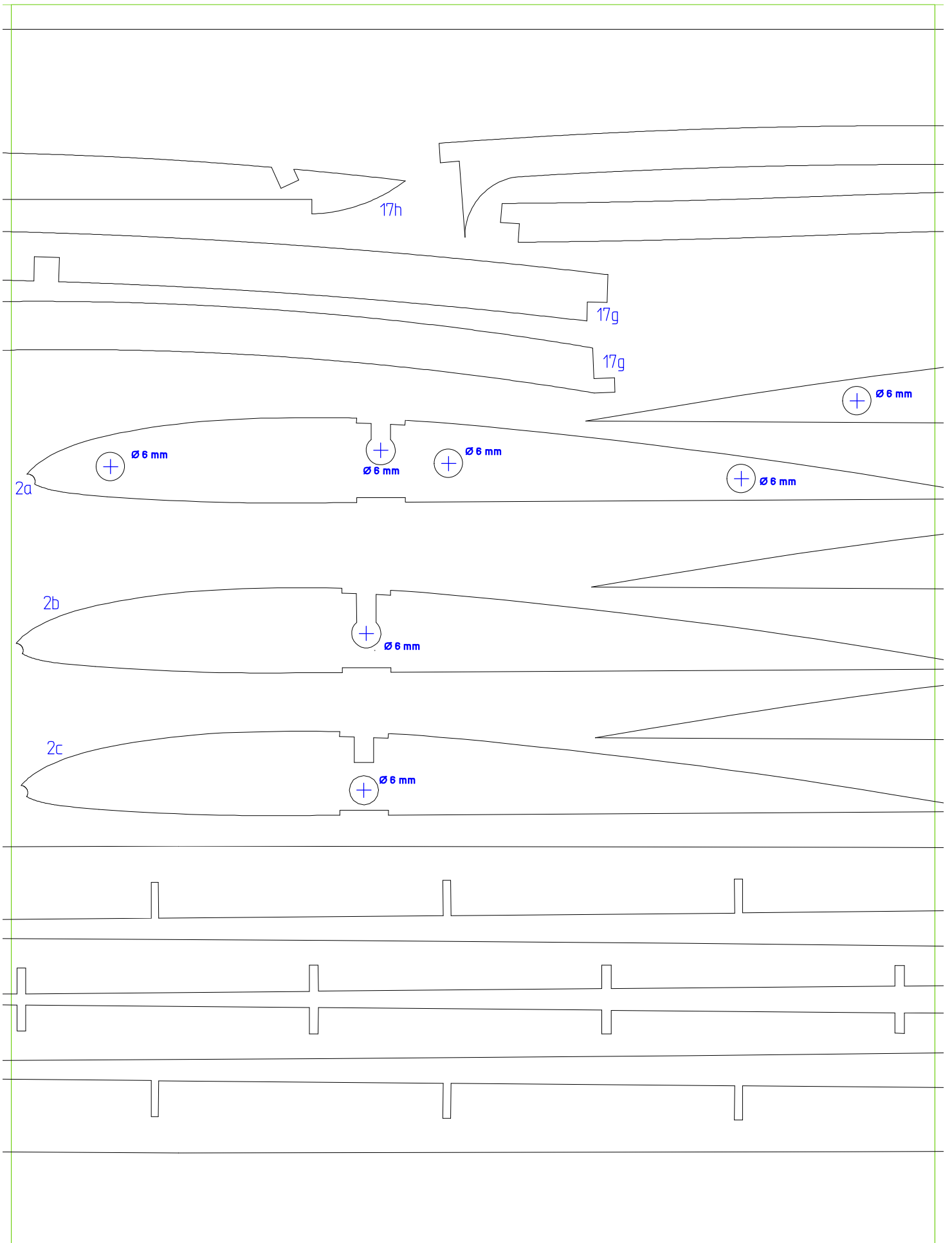


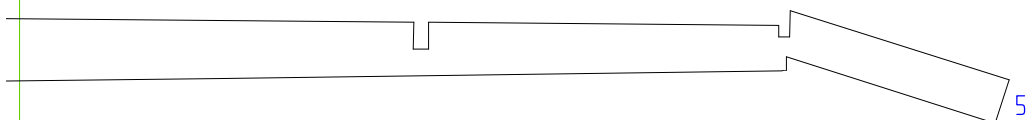
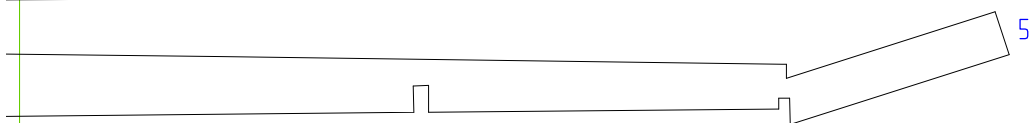
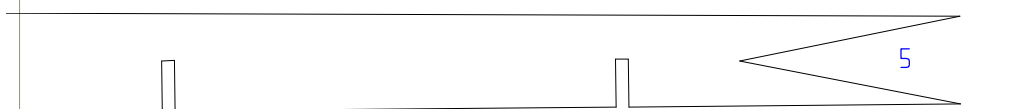
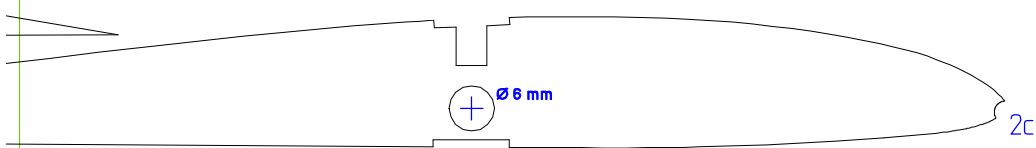
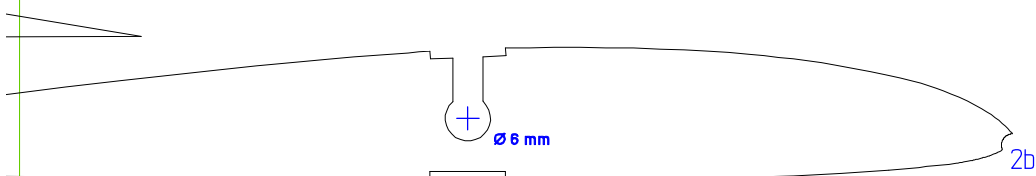
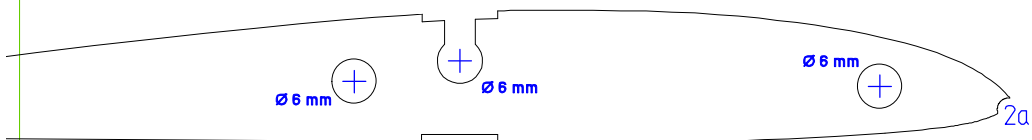
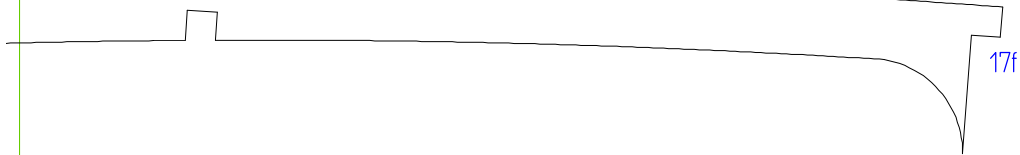
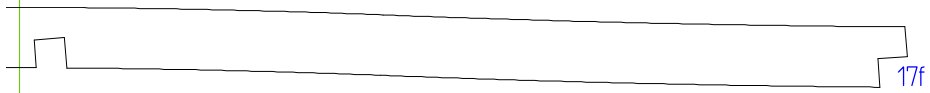


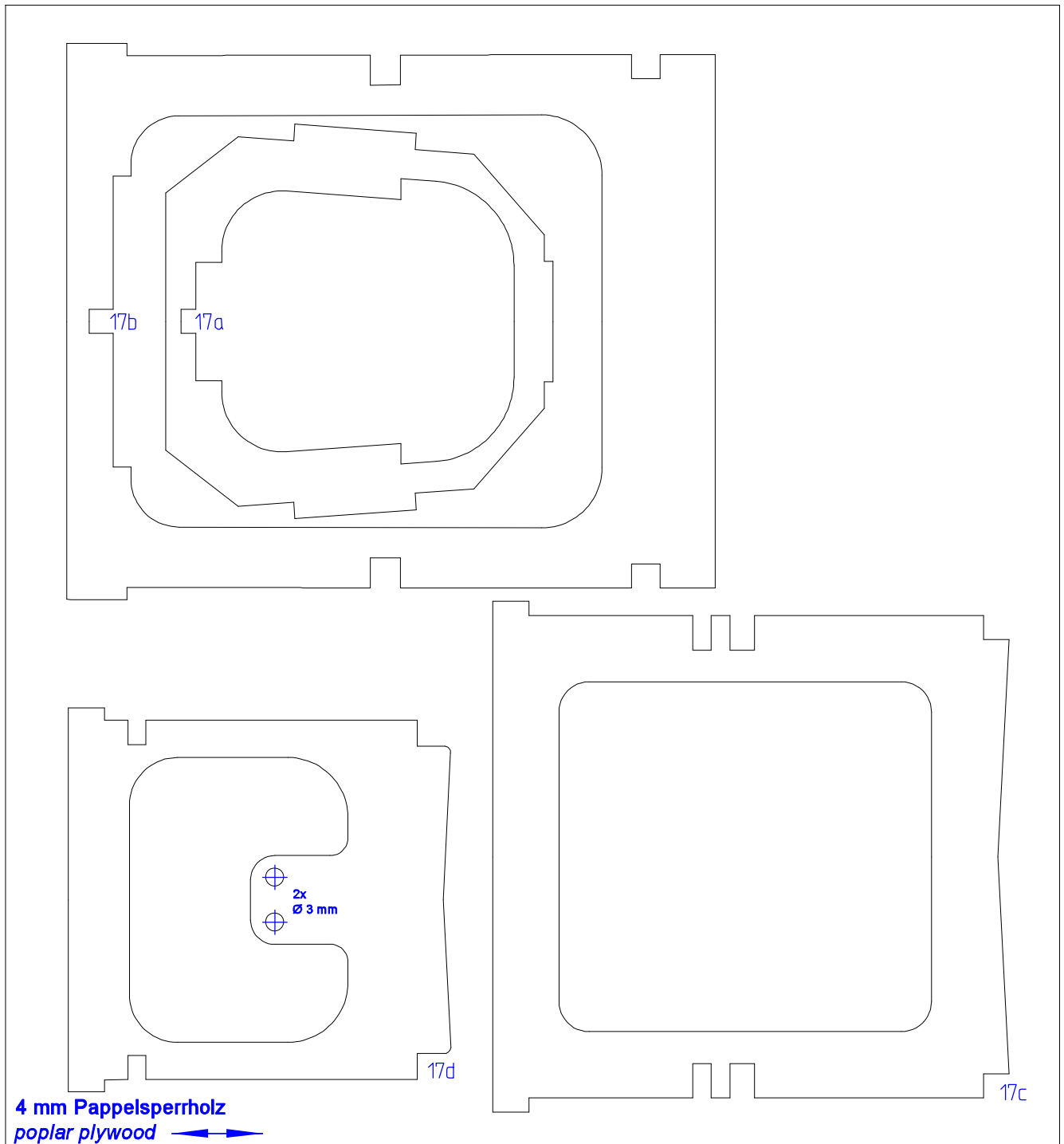
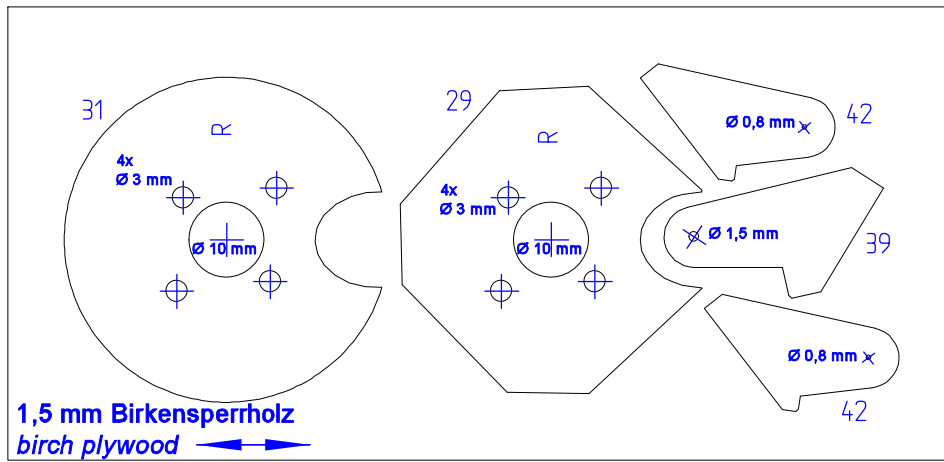


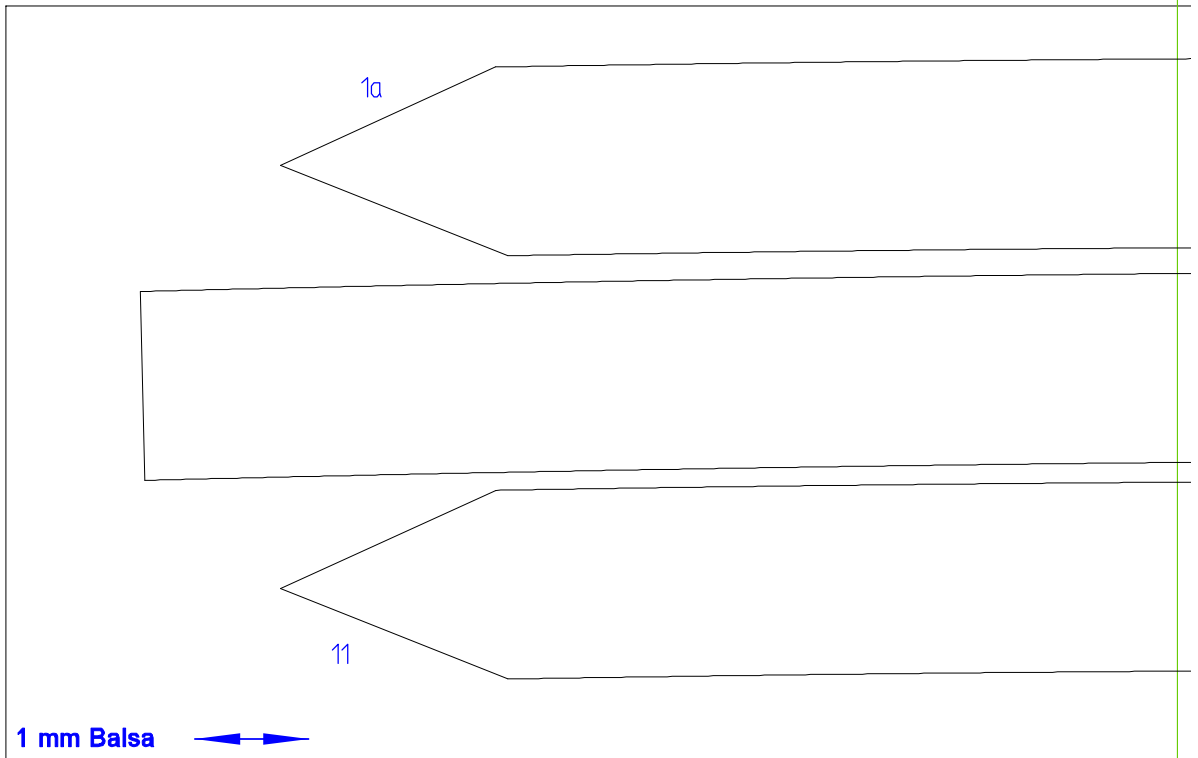
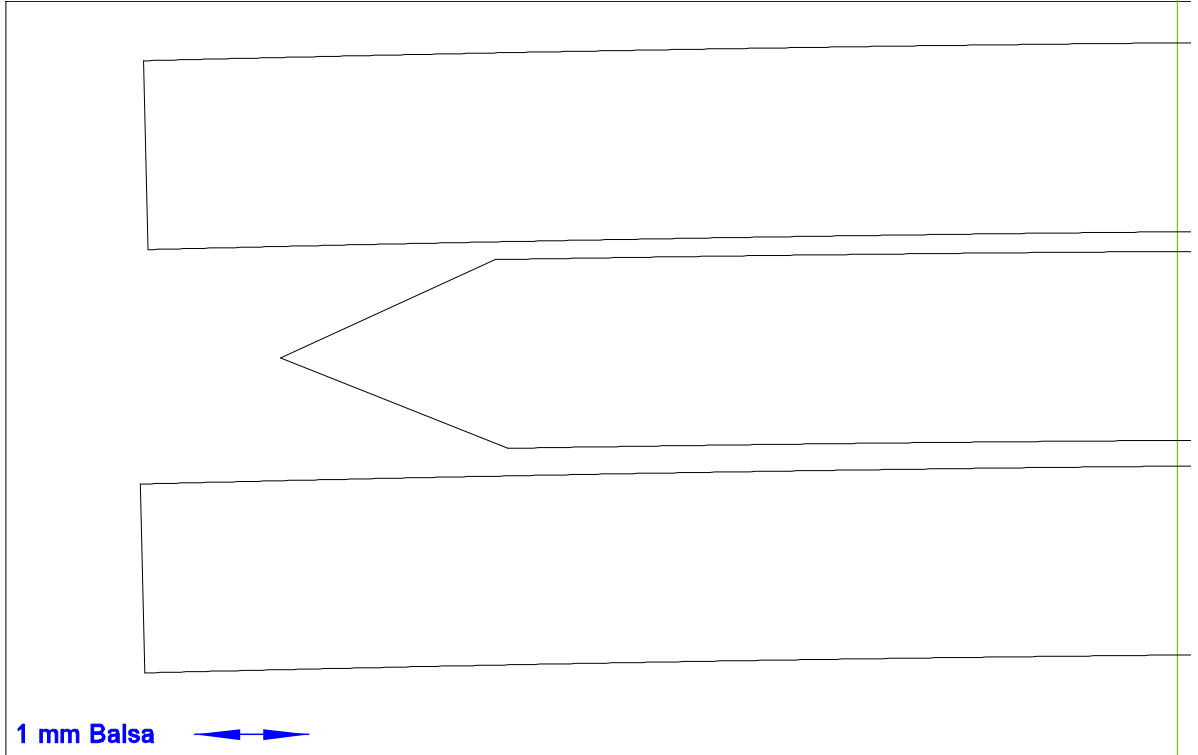
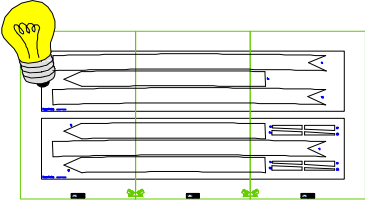


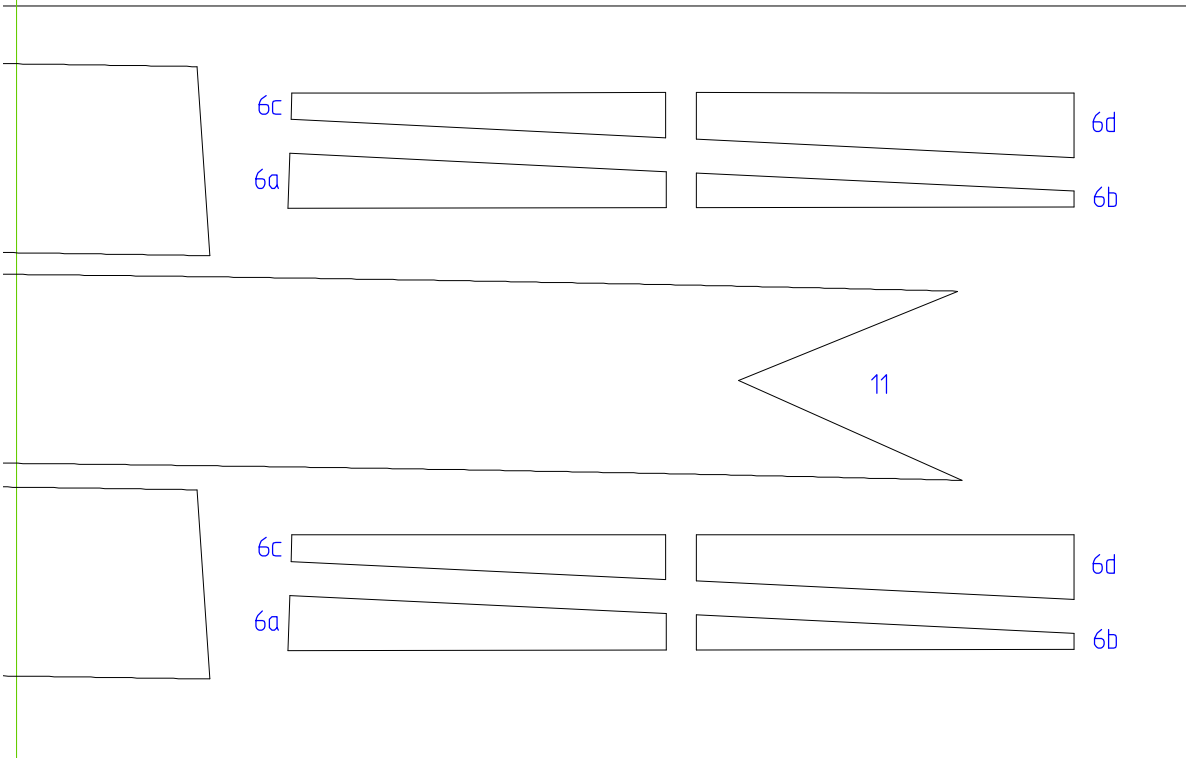
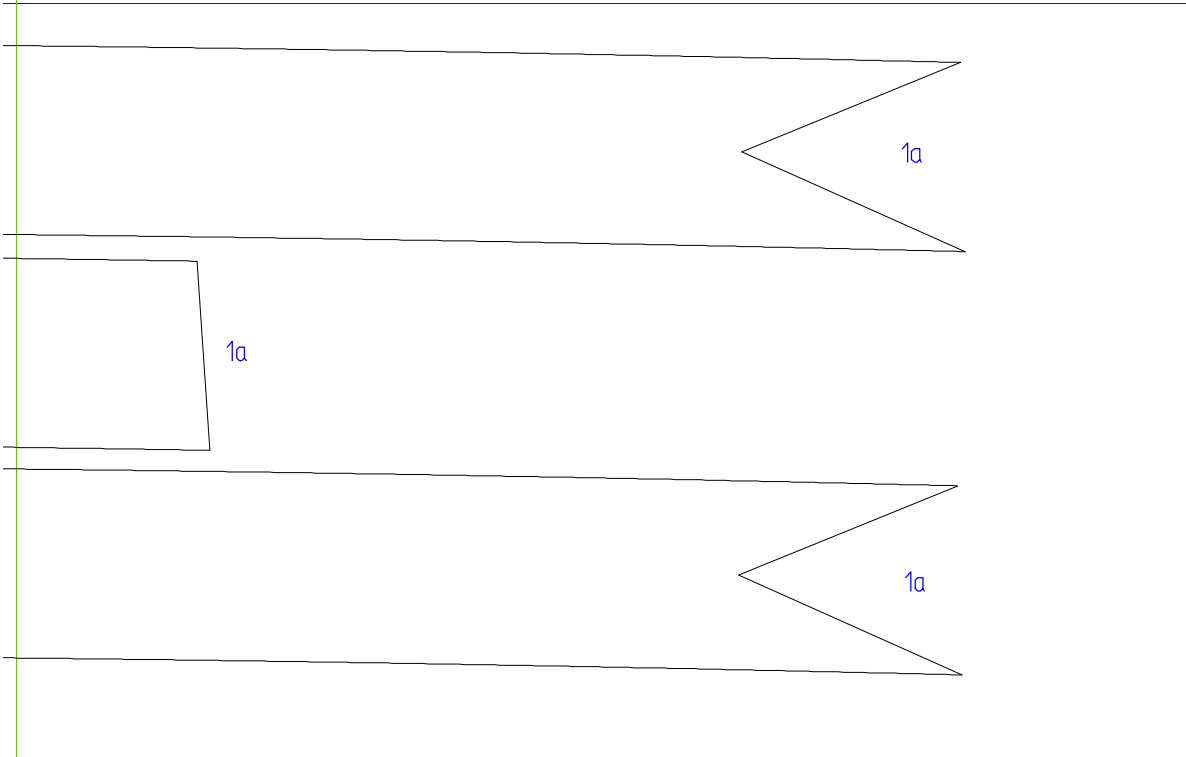
4 mm Pappelsperholz
 poplar plywood \longleftrightarrow

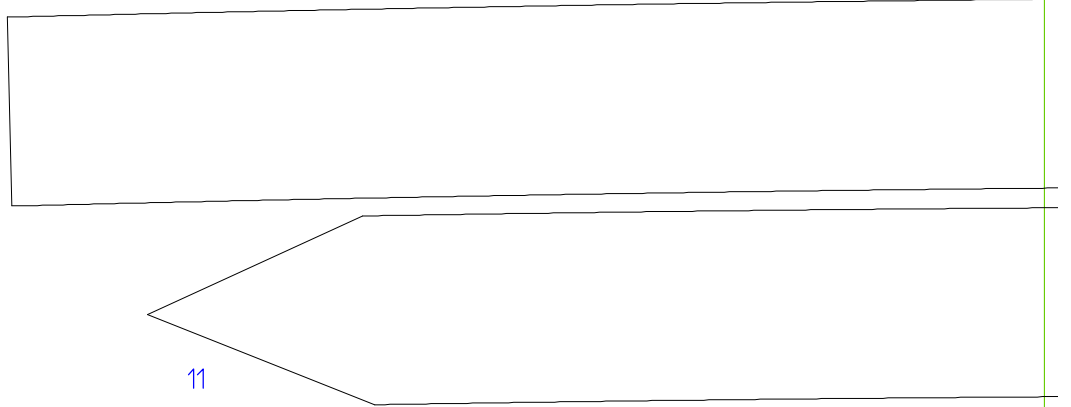
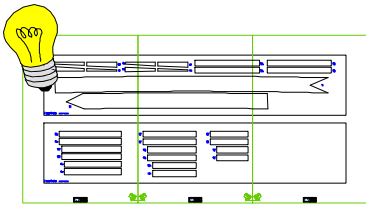








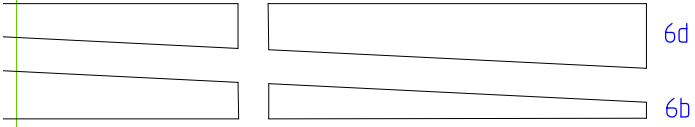




1 mm Balsa 

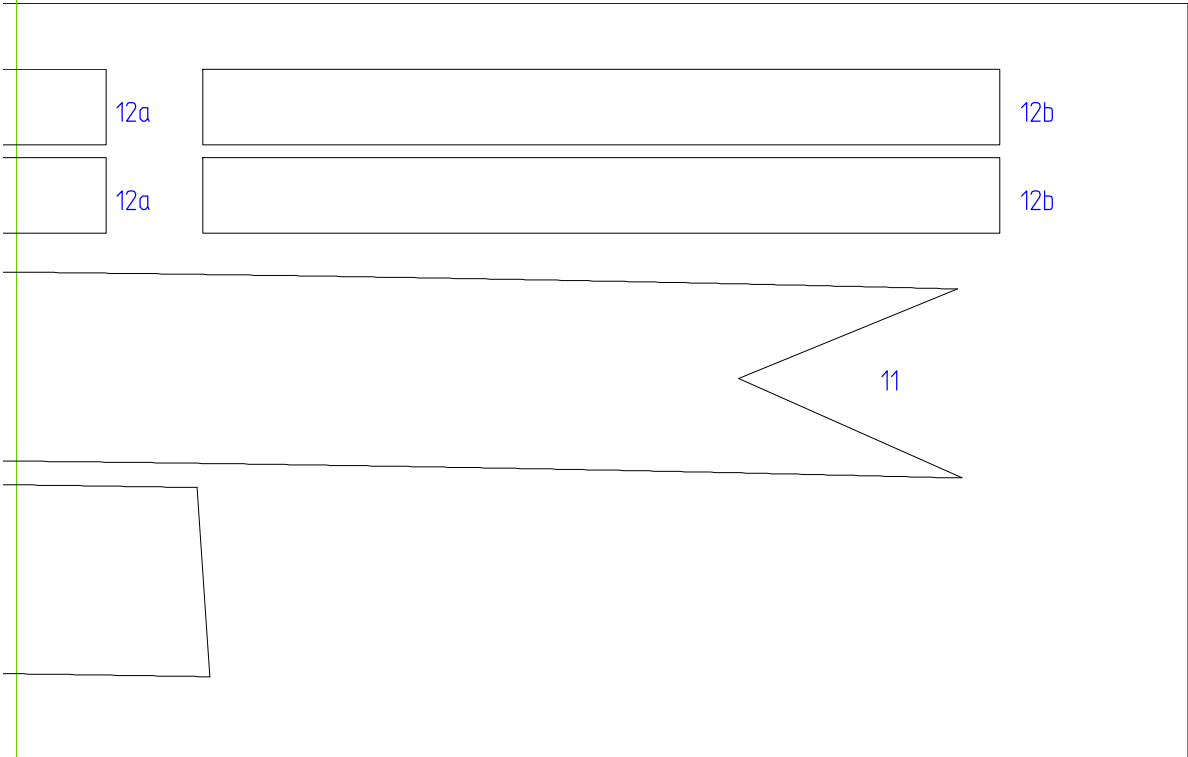


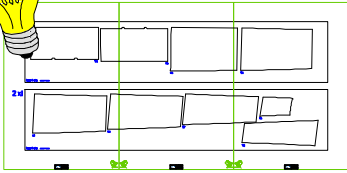
1 mm Balsa 



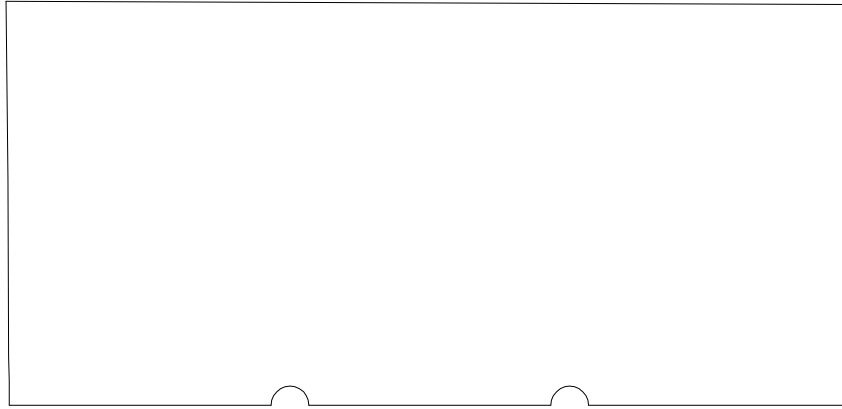
12f	
12f	
12g	
12g	
12h	
12h	

12i	
12i	
12j	
12j	





2x!

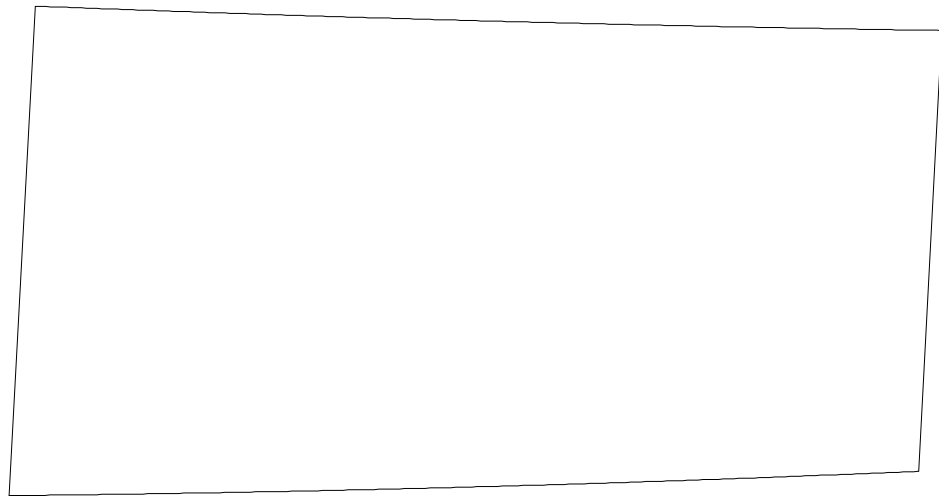


15a

1 mm Balsa



2x!

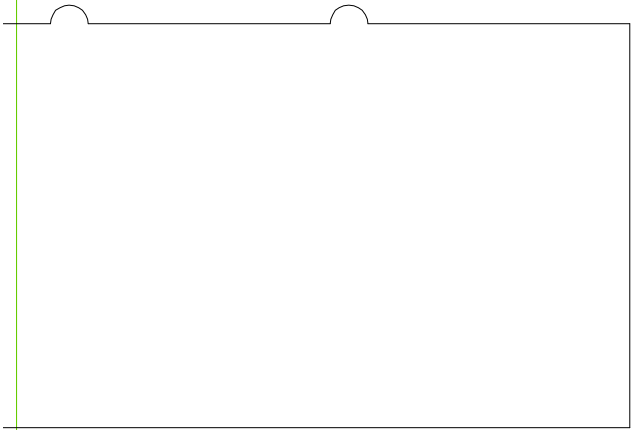


15d

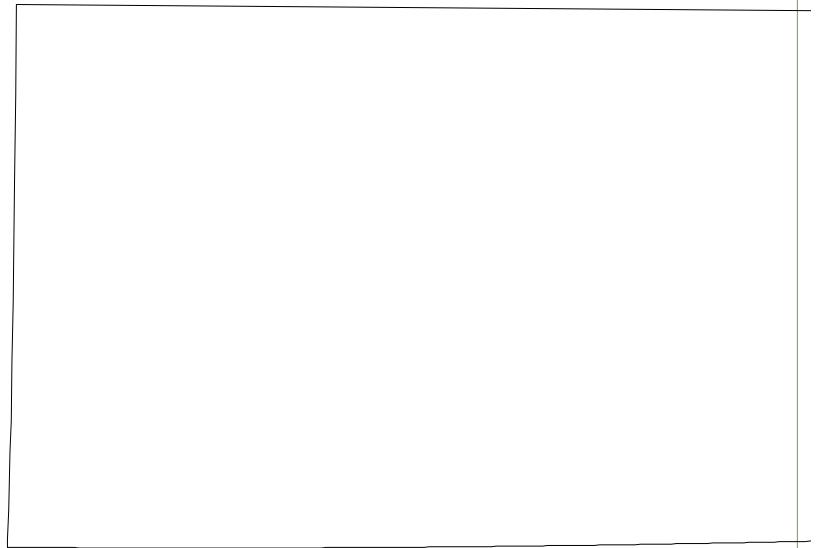
15e

1 mm Balsa

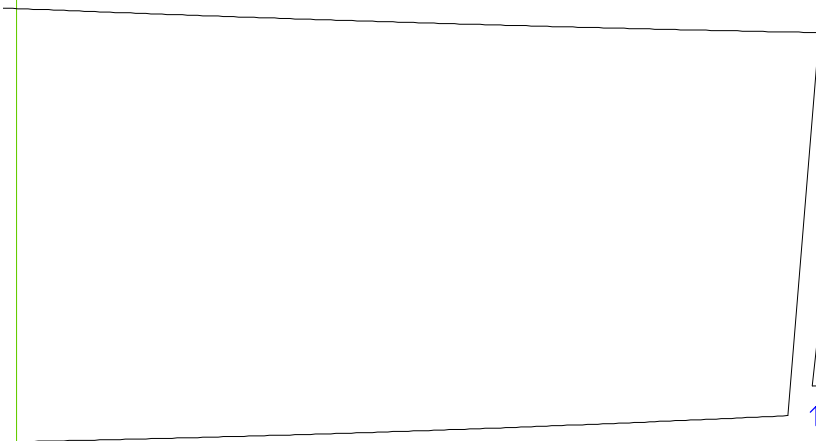




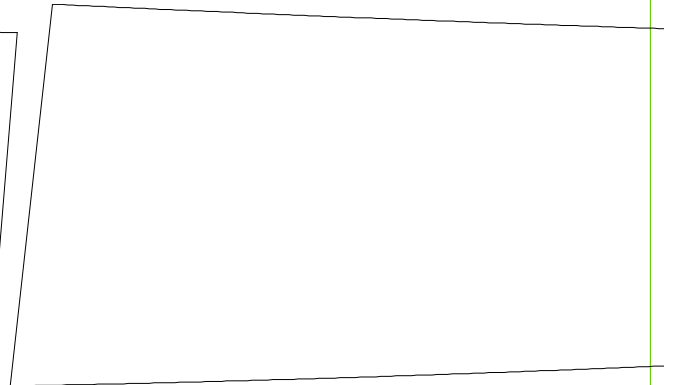
15a

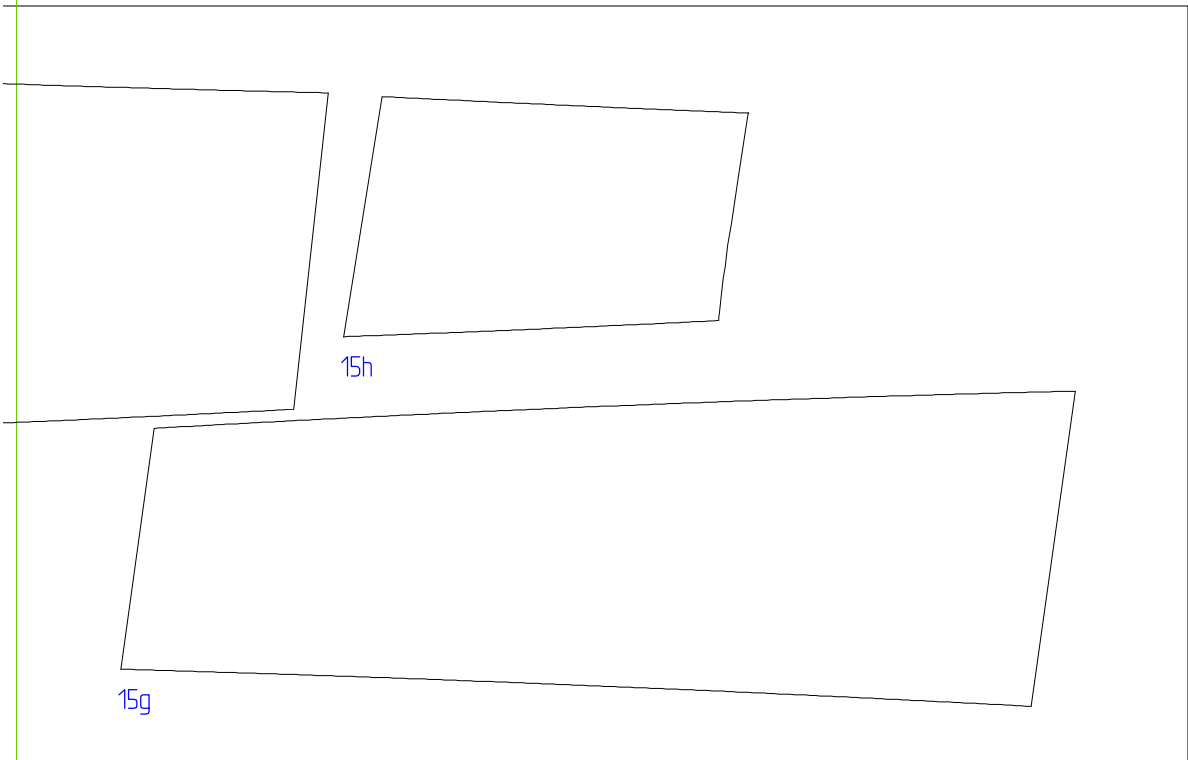
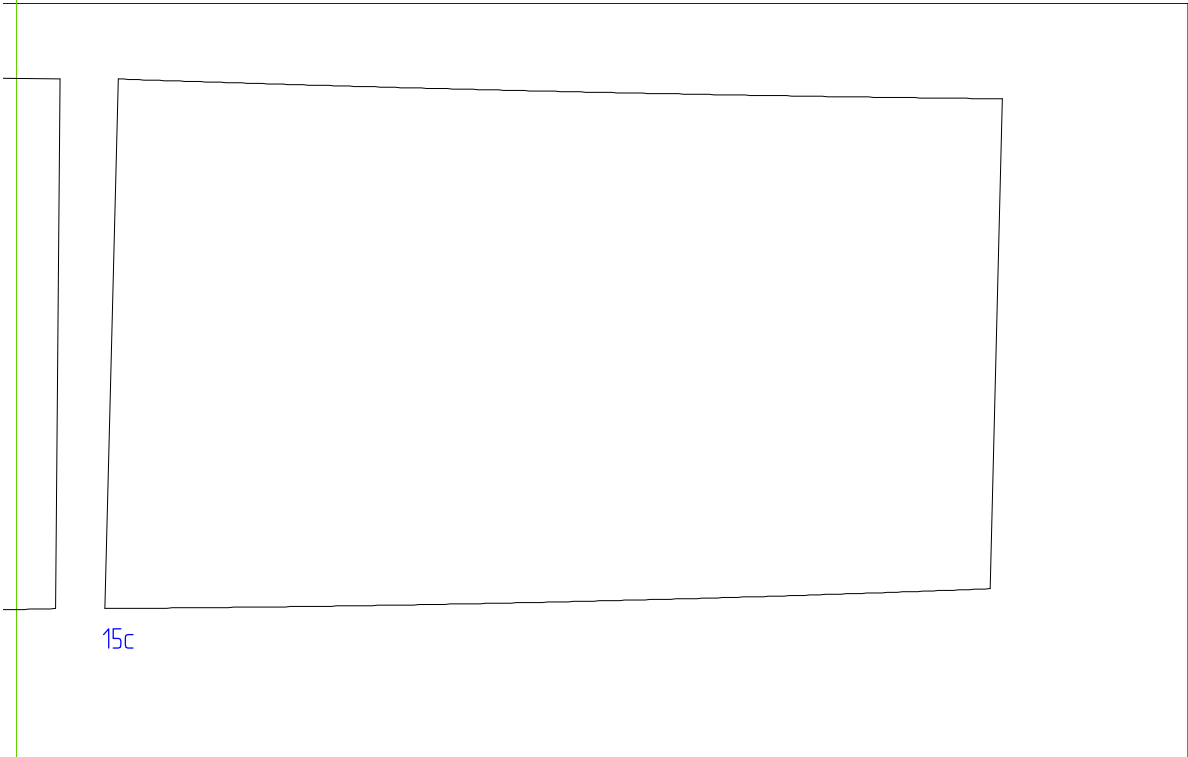


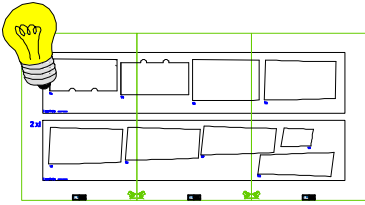
15b



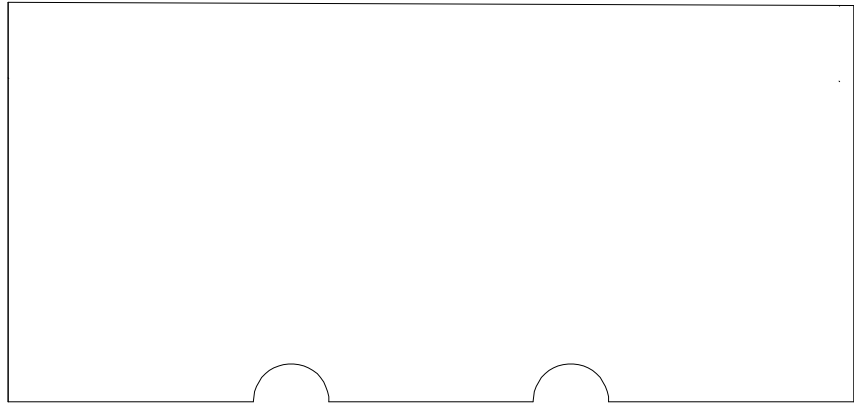
15f



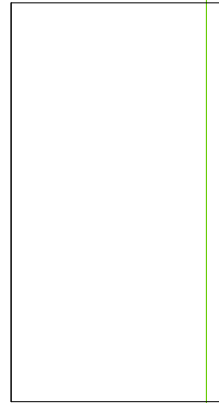




2x!



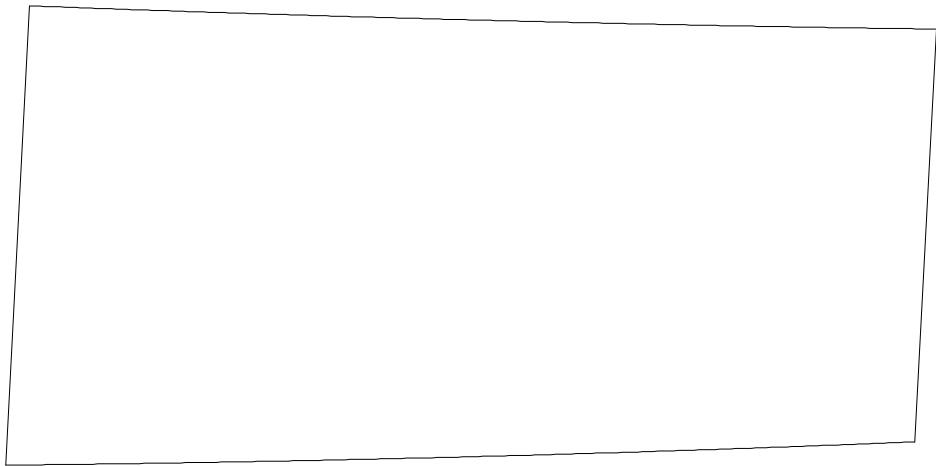
16a



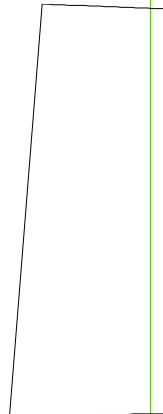
16a

1 mm Balsa 

2x!

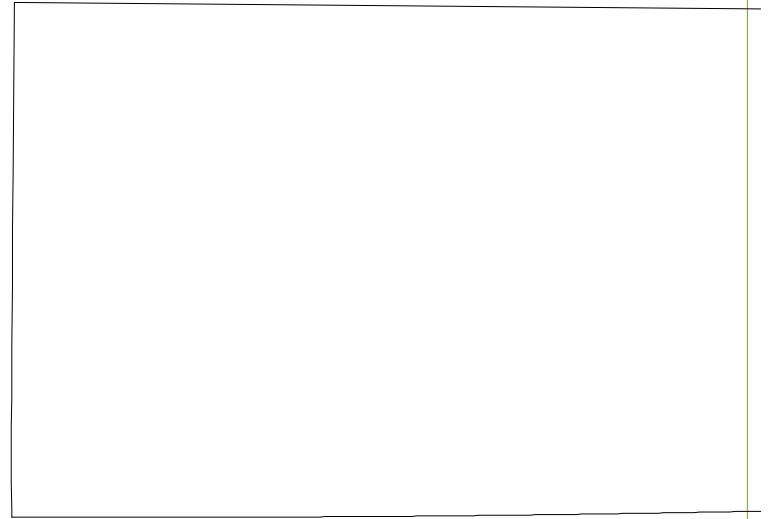
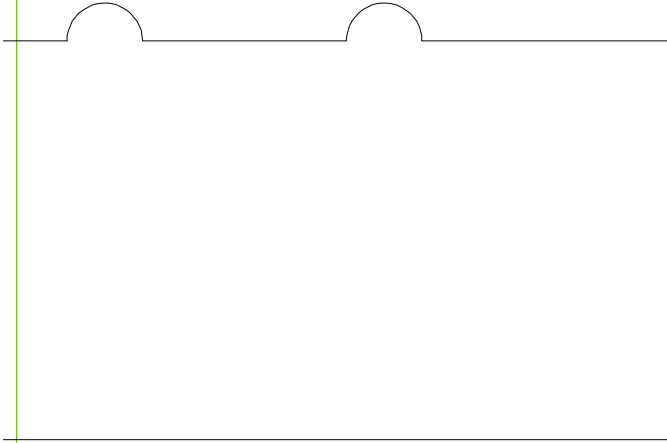


16d

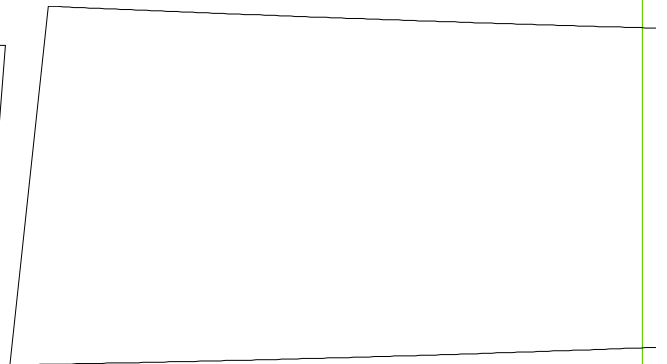
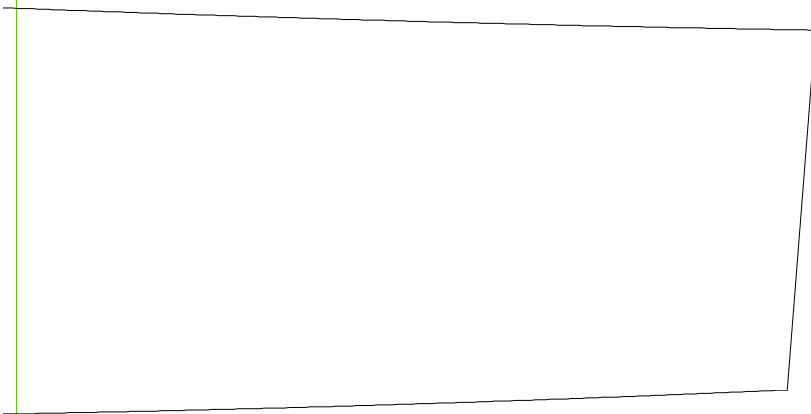


16e

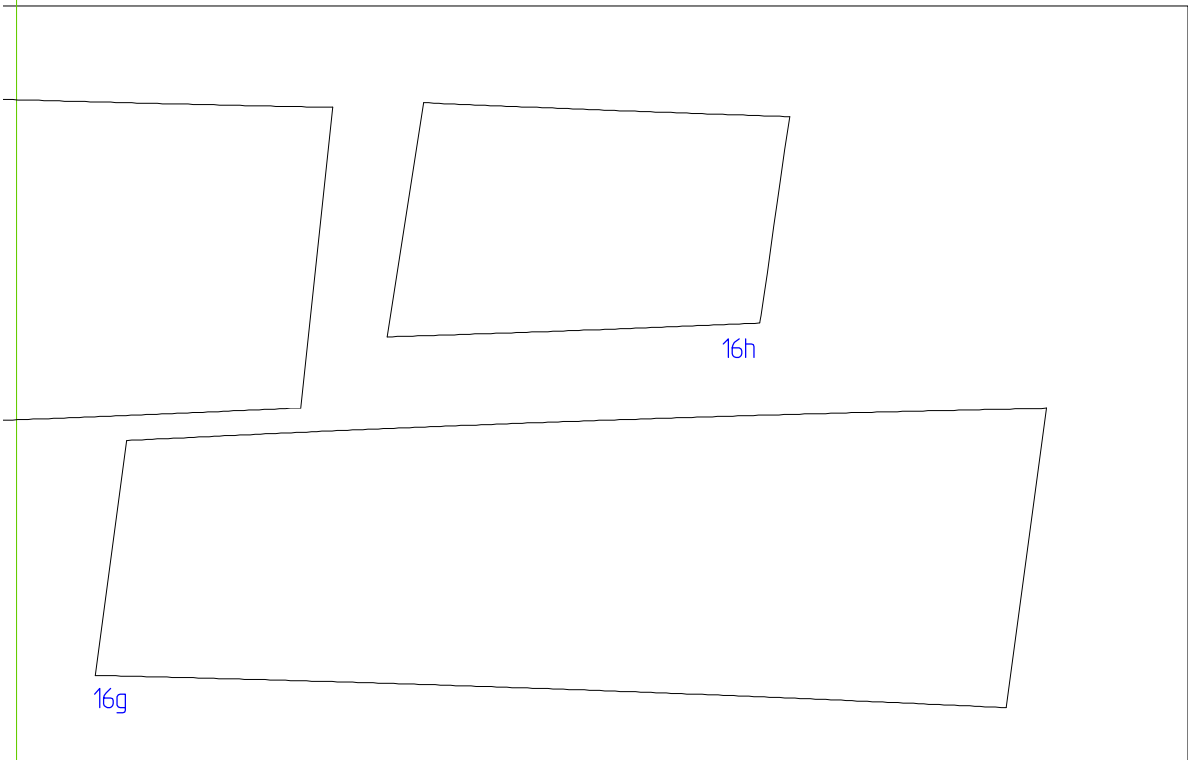
1 mm Balsa 

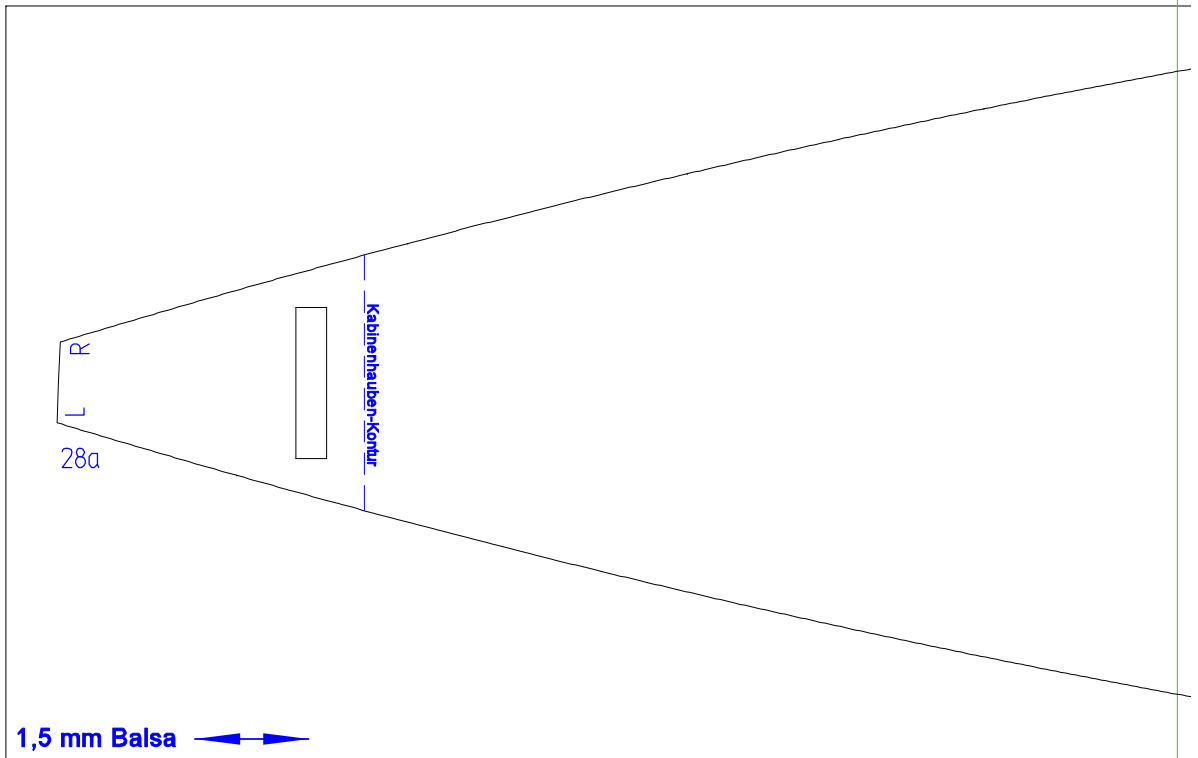
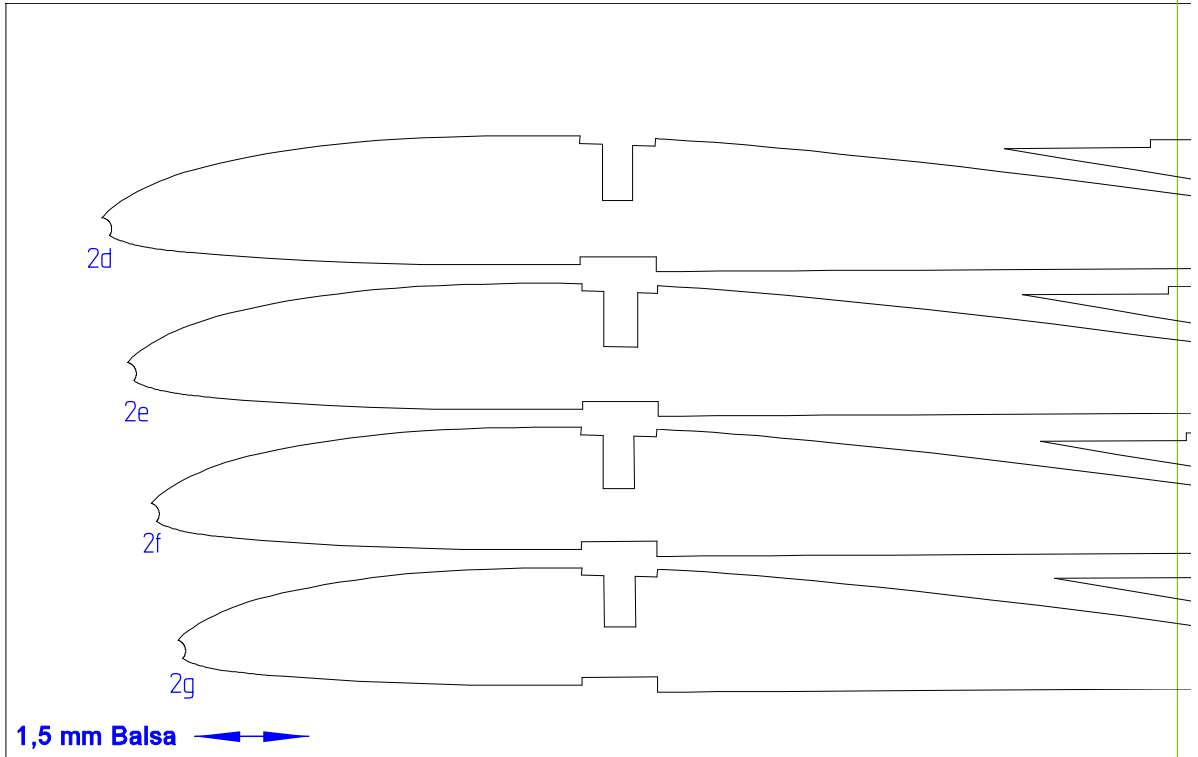
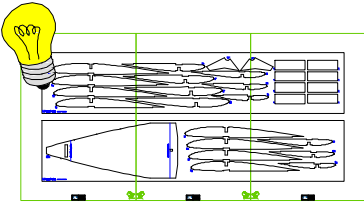


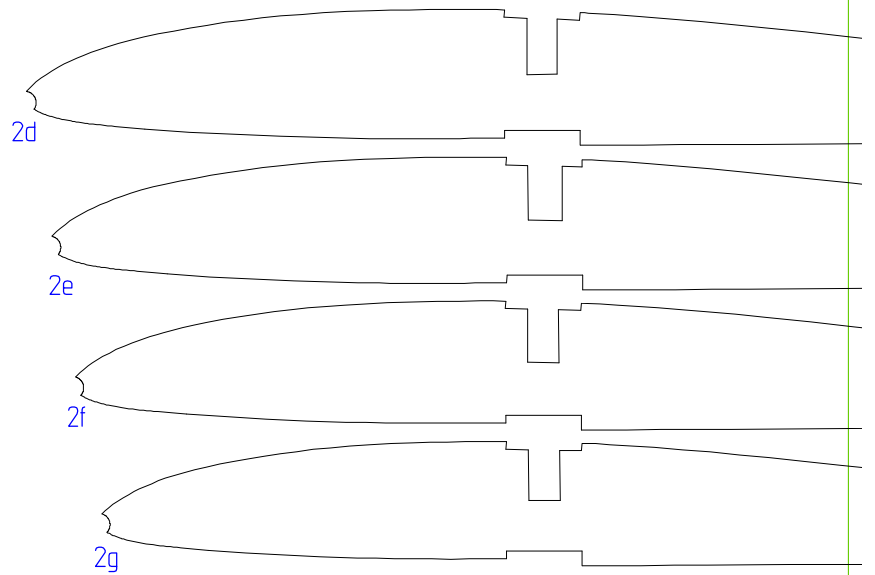
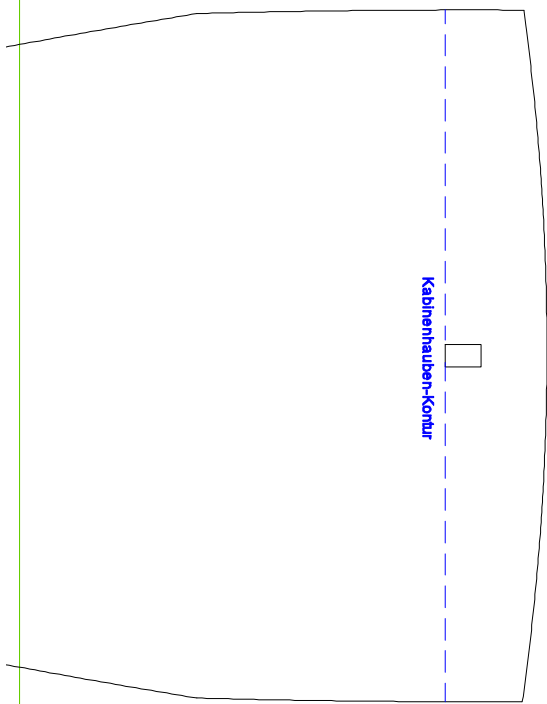
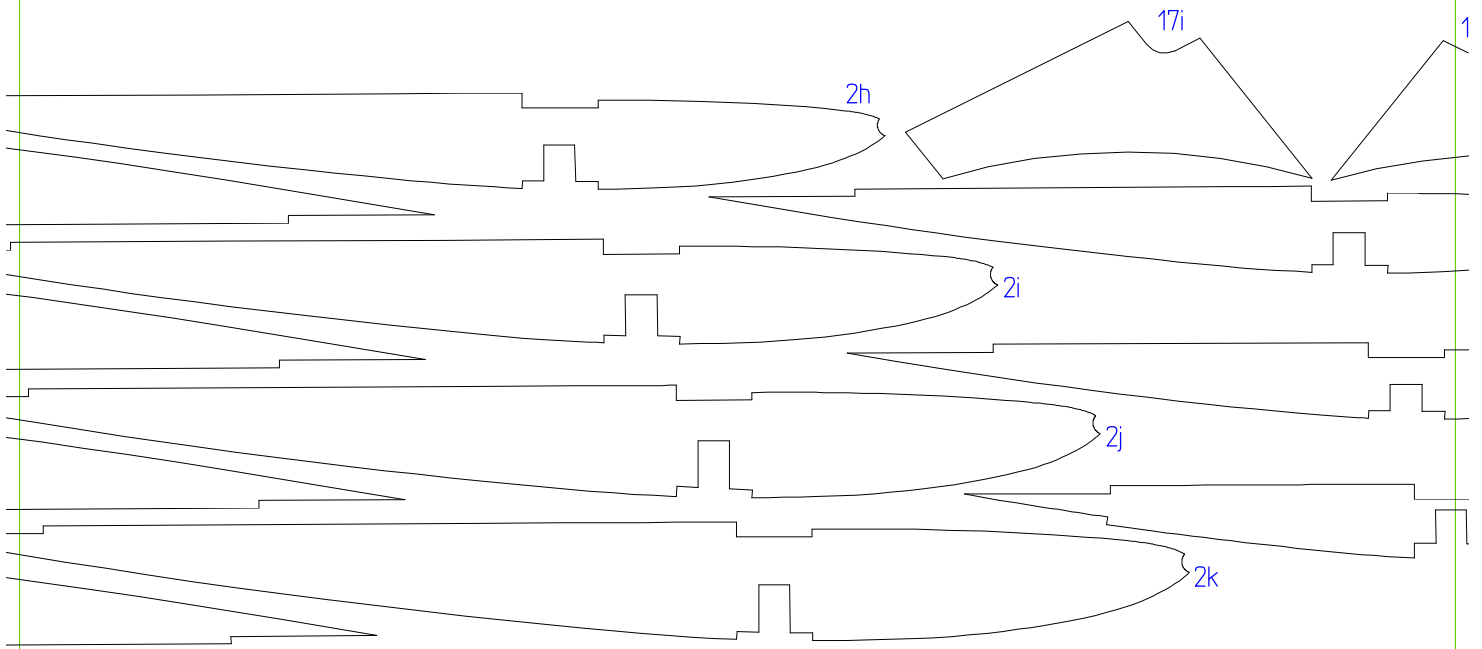
16b

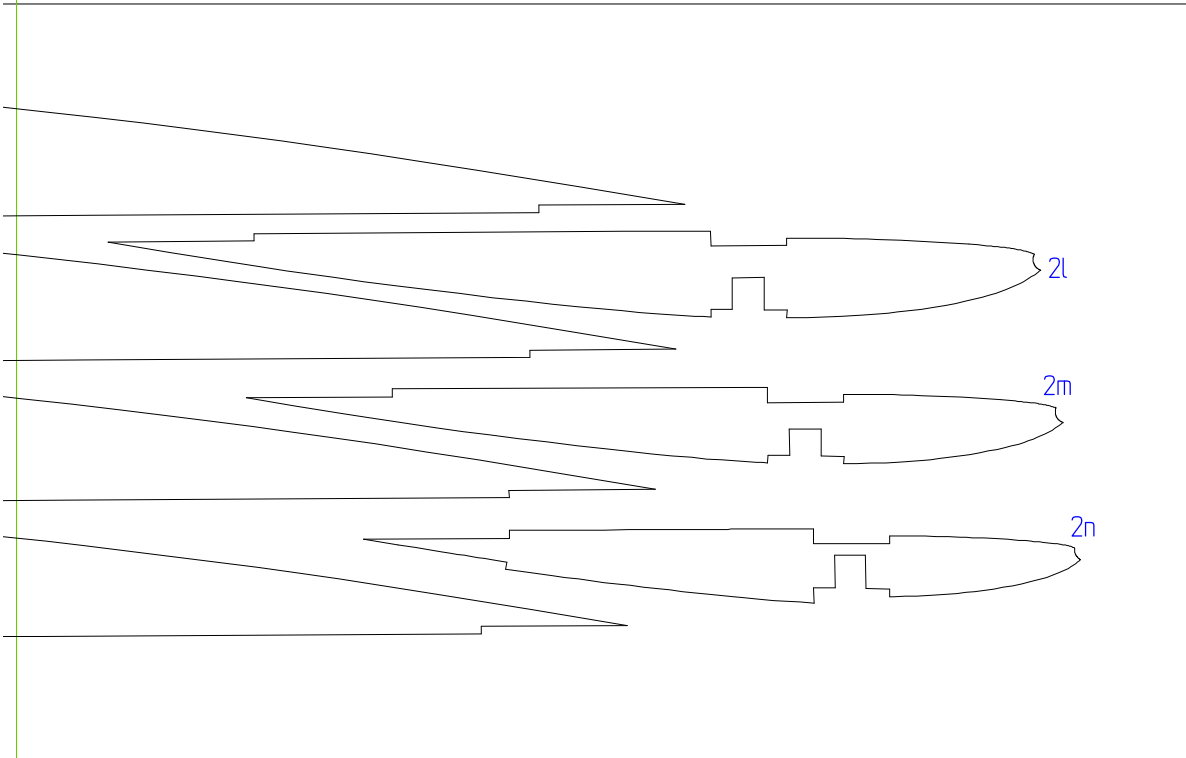
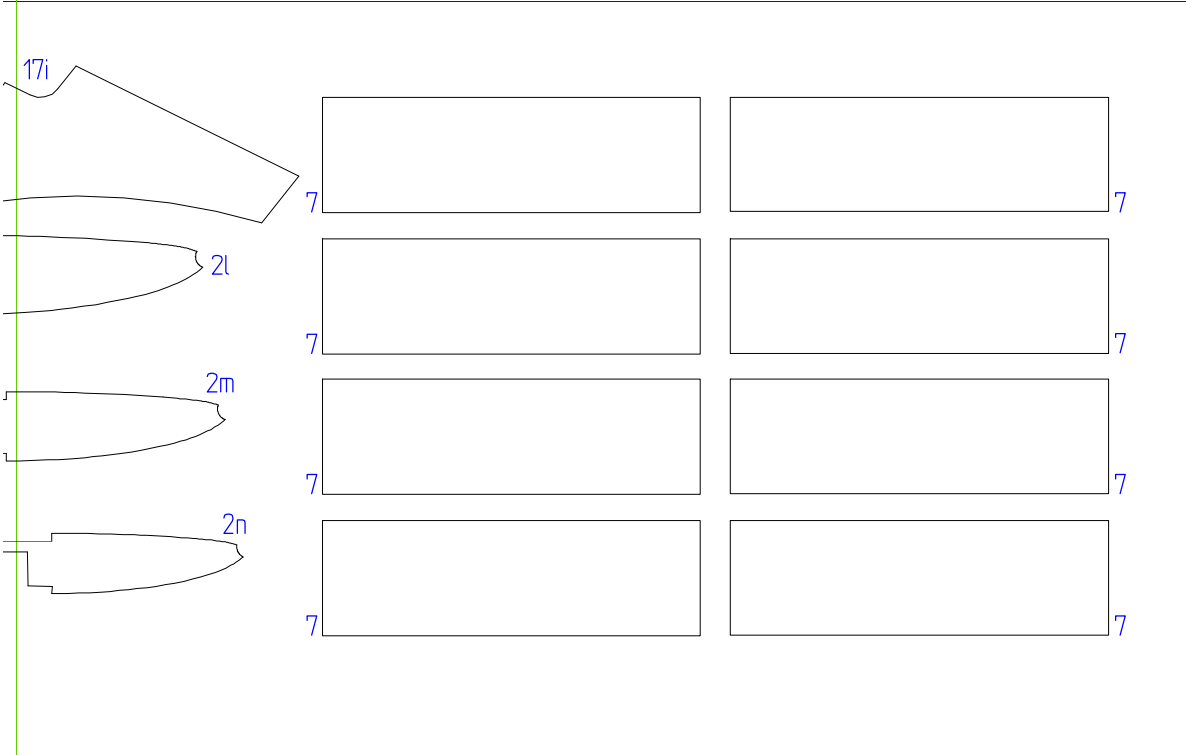


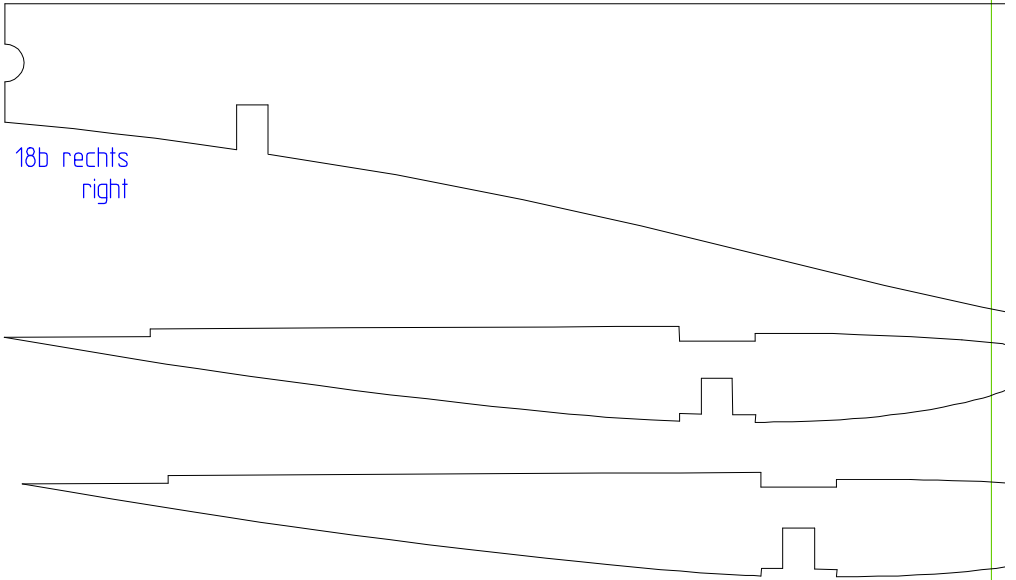
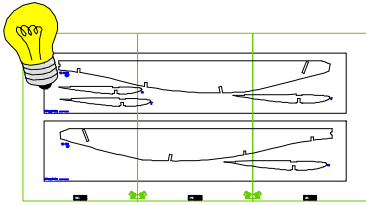
16f





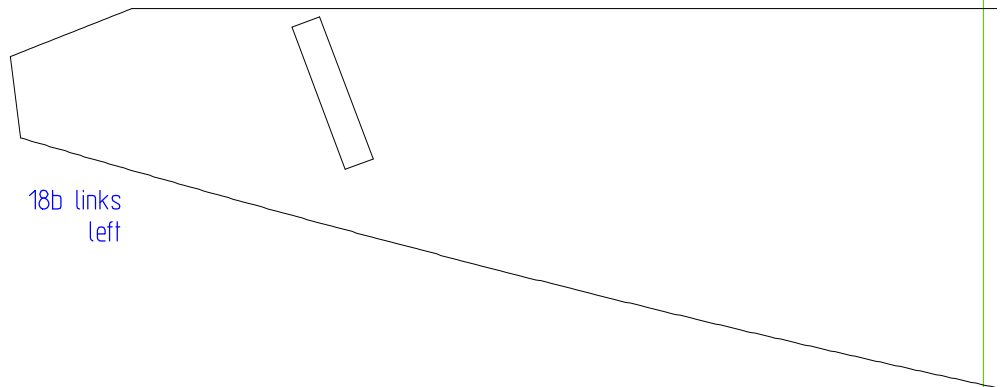






18b rechts
right

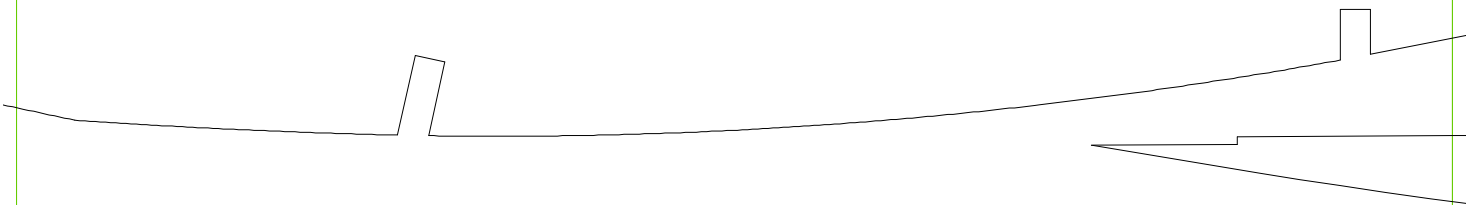
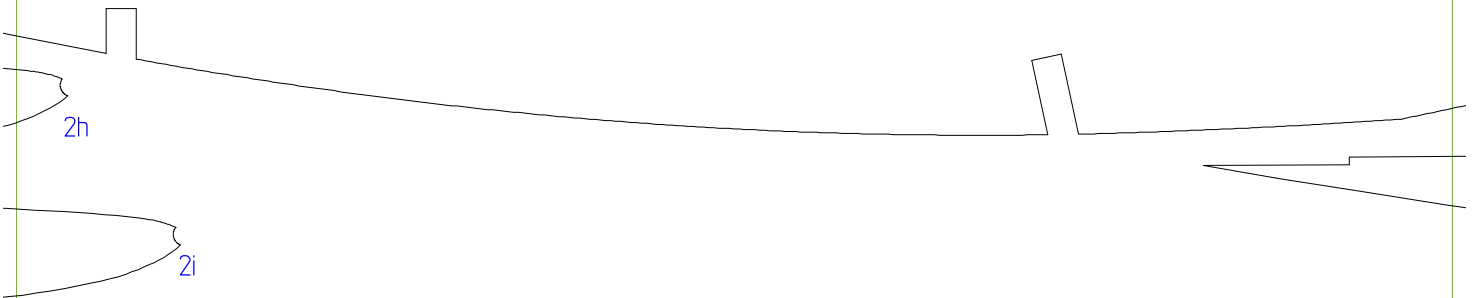
1,5 mm Balsa

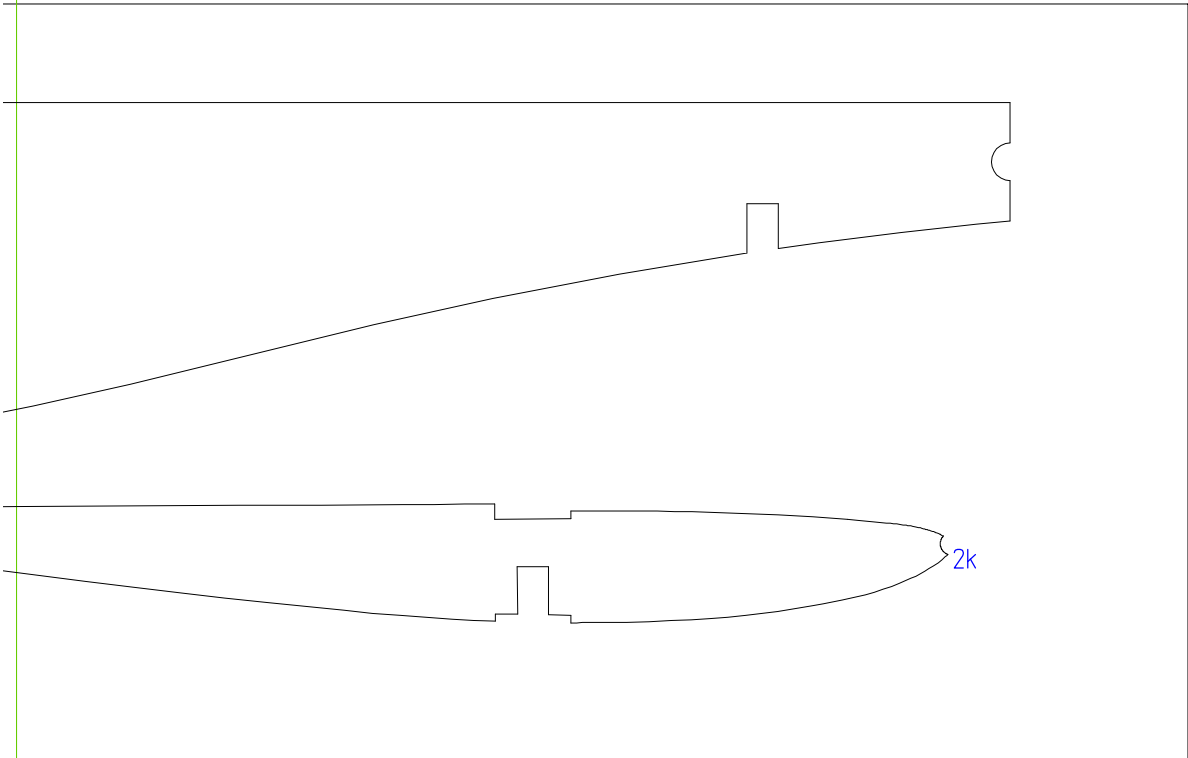
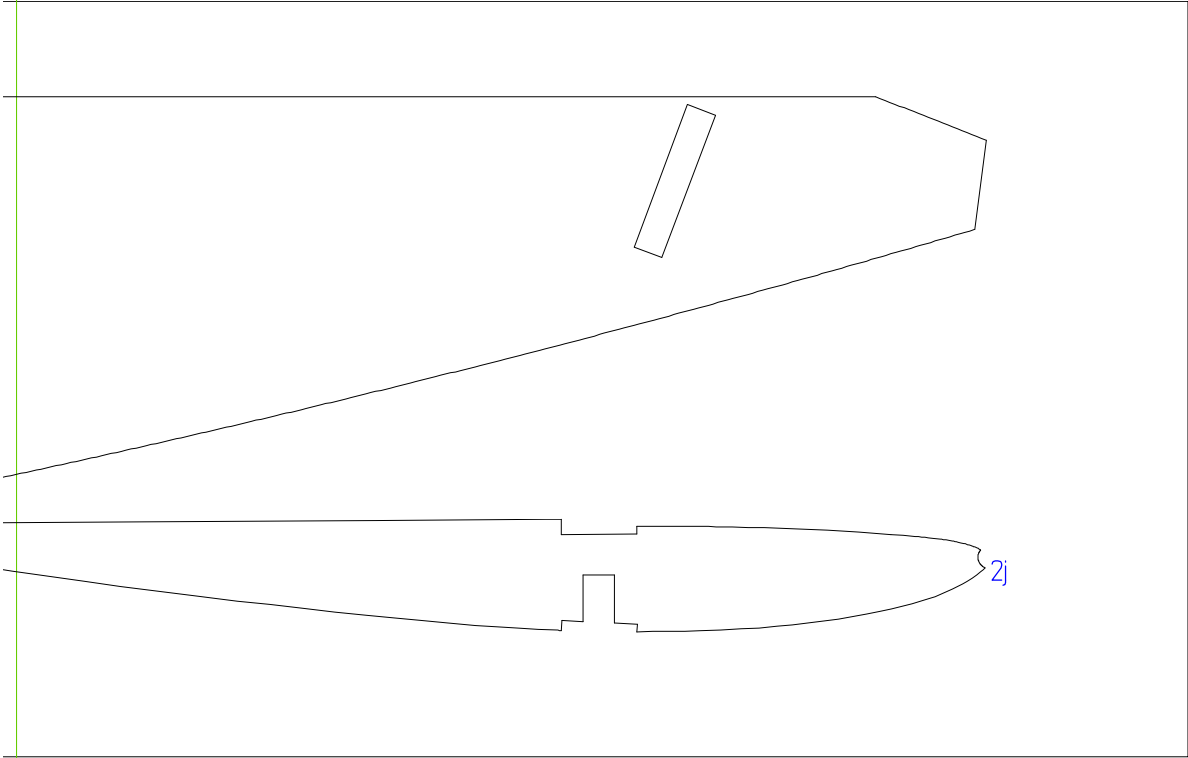


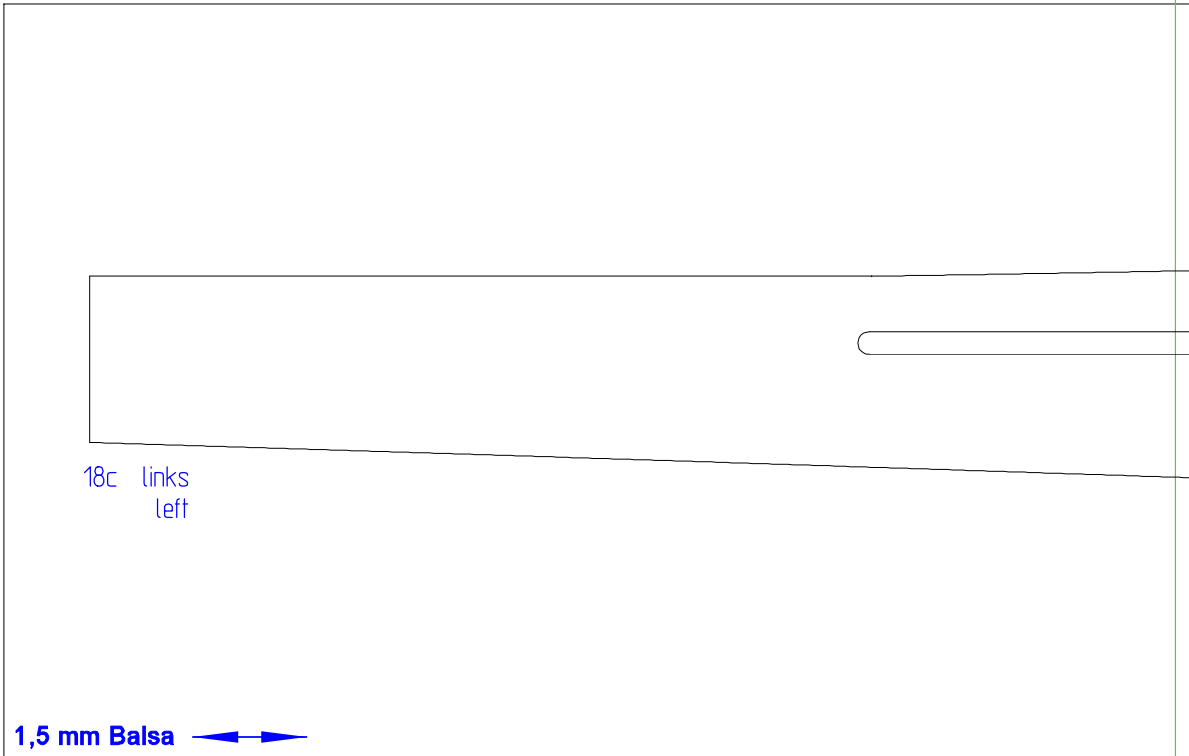
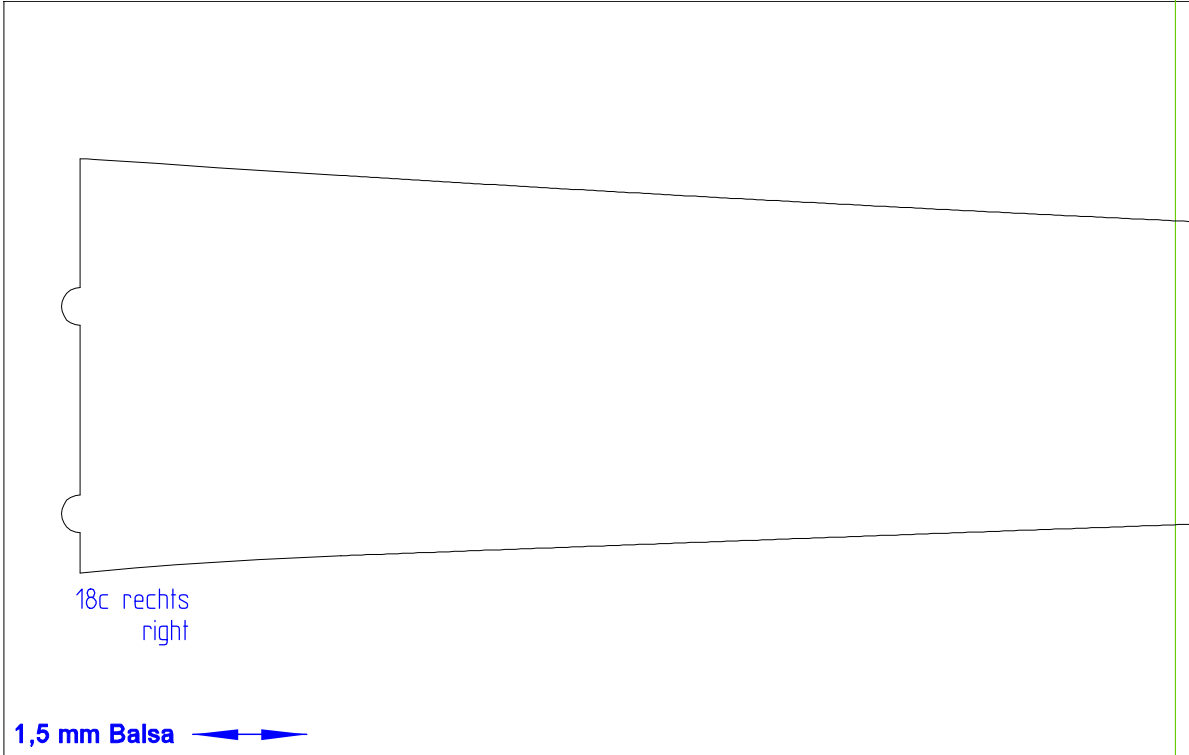
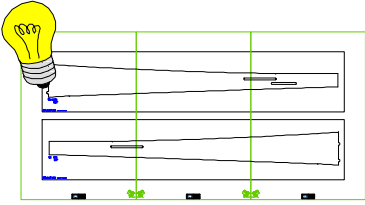
18b links
left

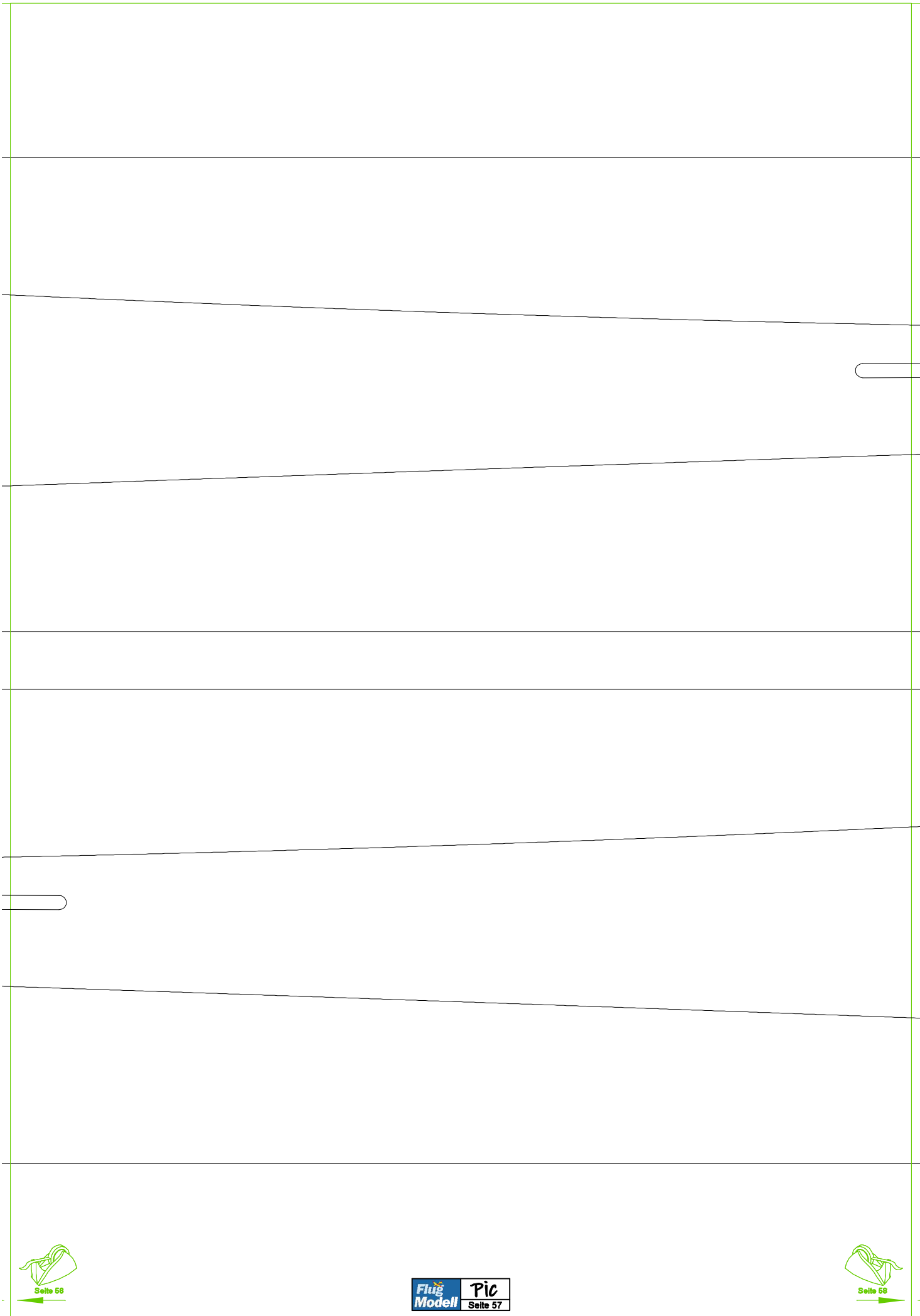
1,5 mm Balsa

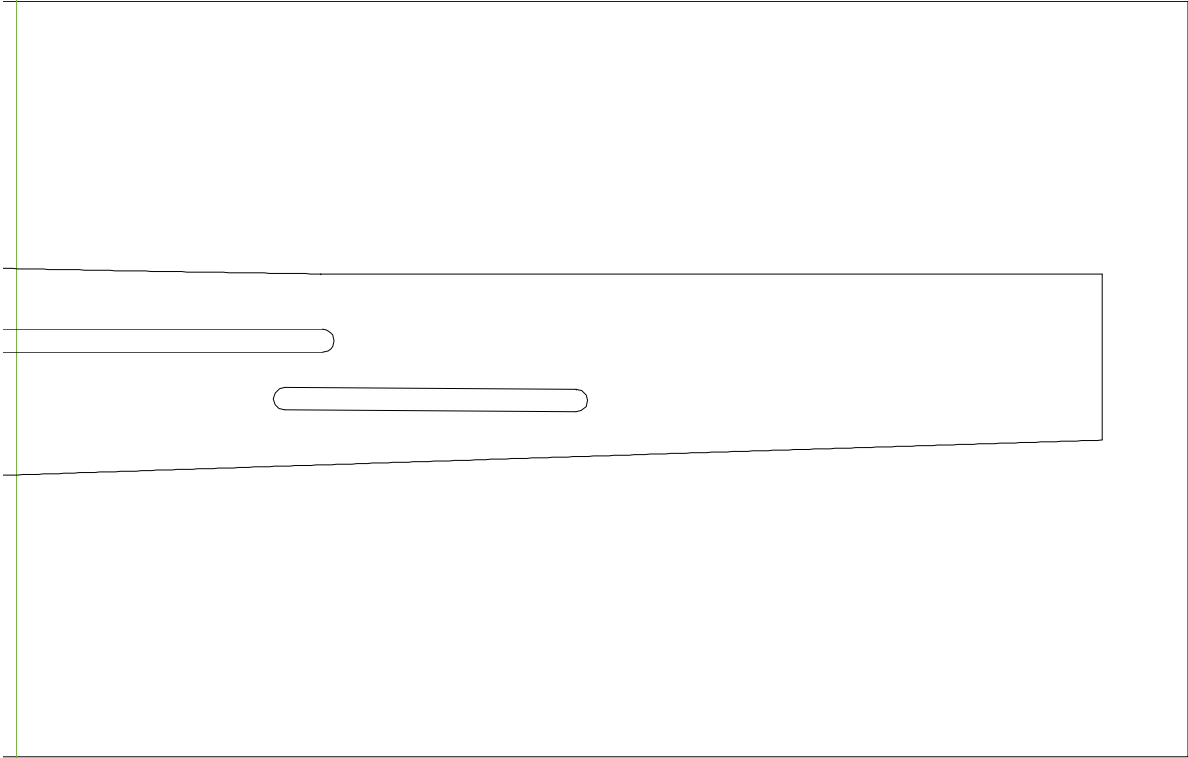


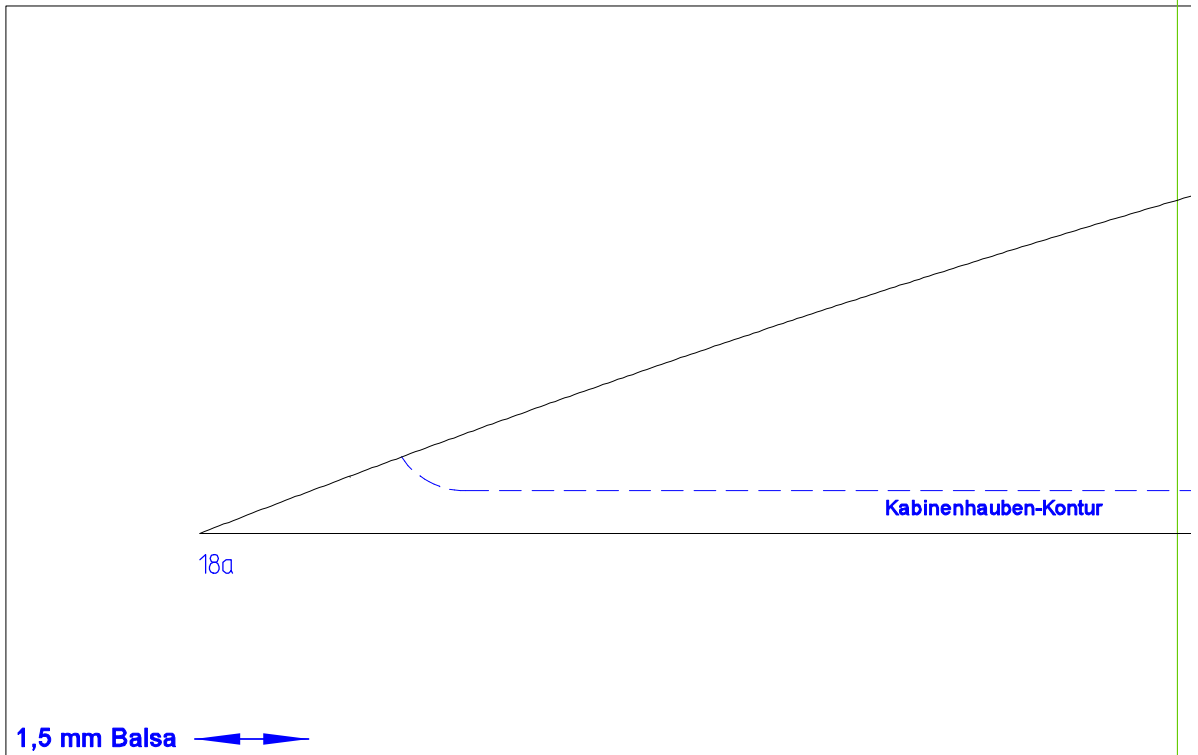
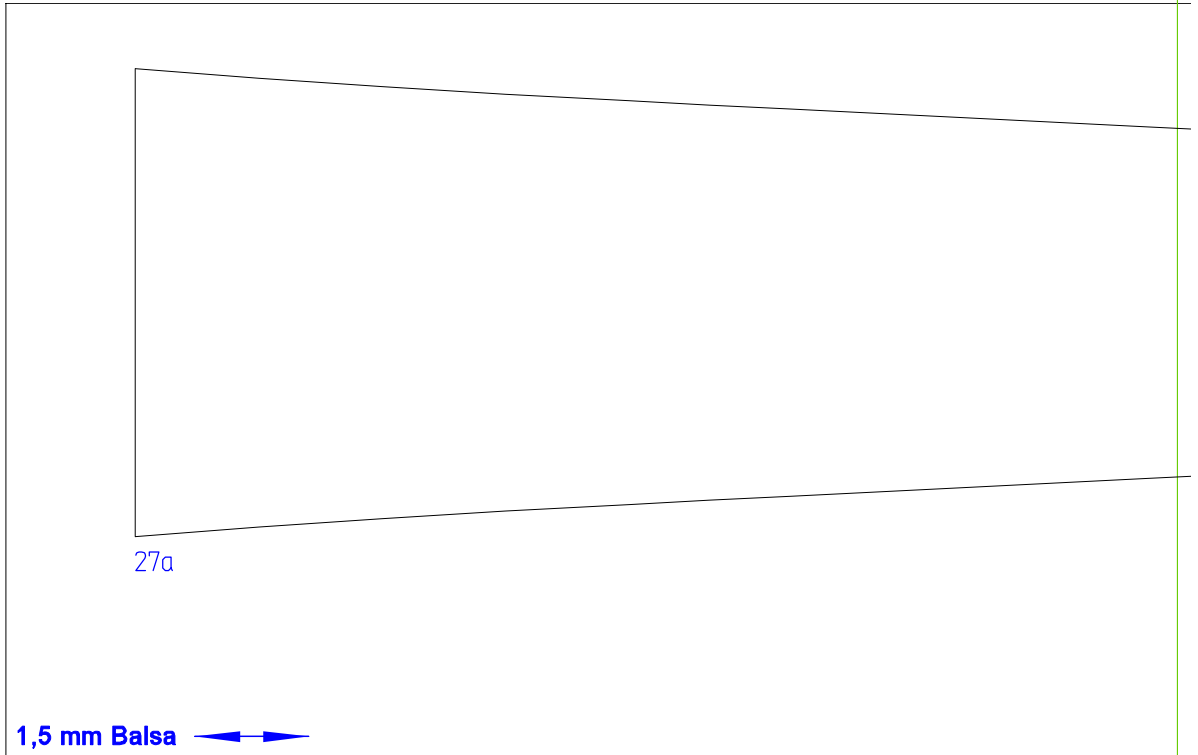
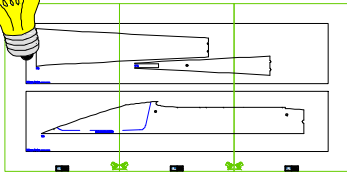










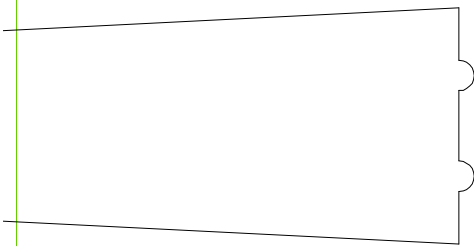


27a

⊕ Ø 5 mm

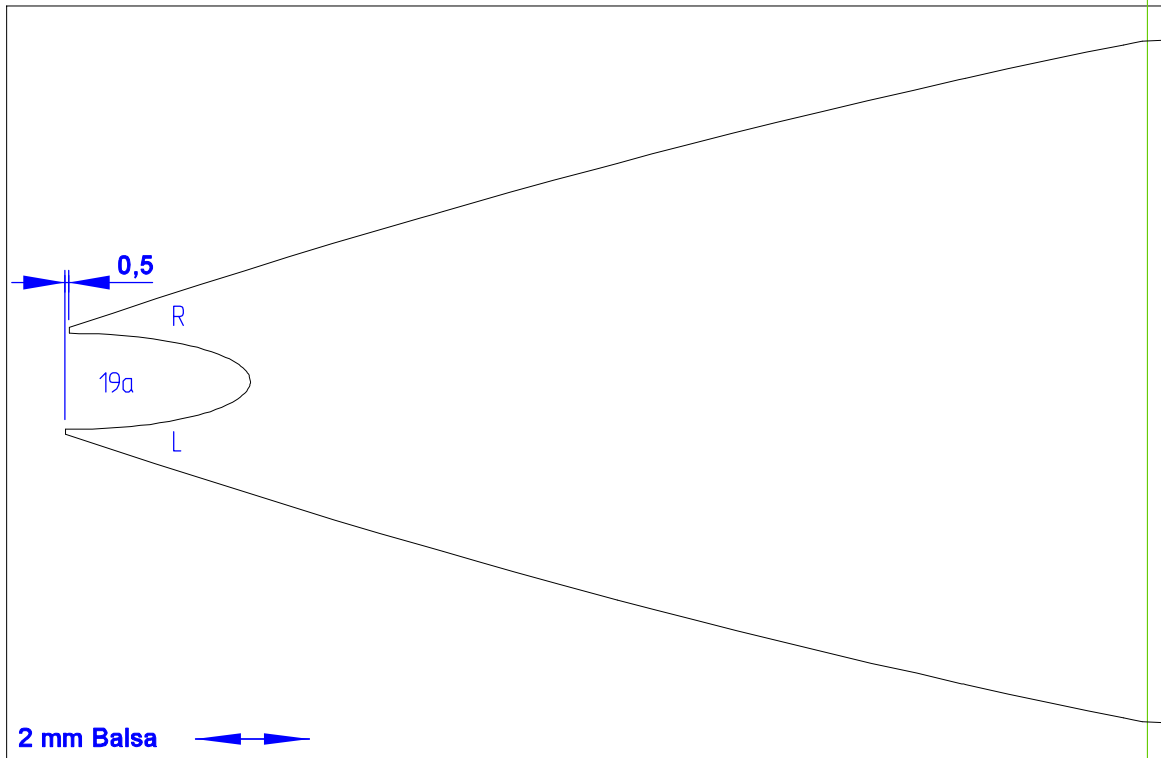
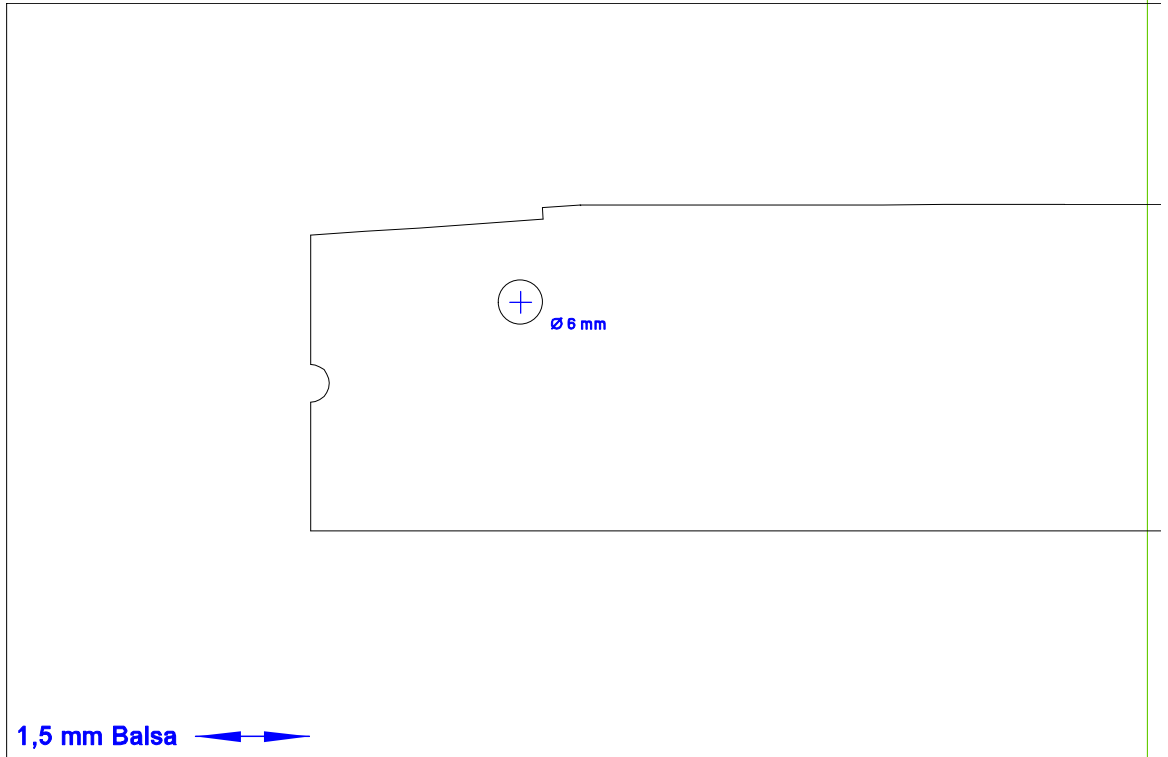
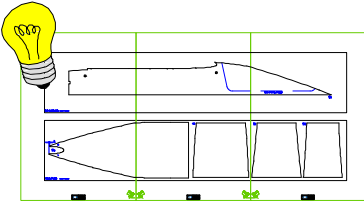
⊕ Ø 6 mm






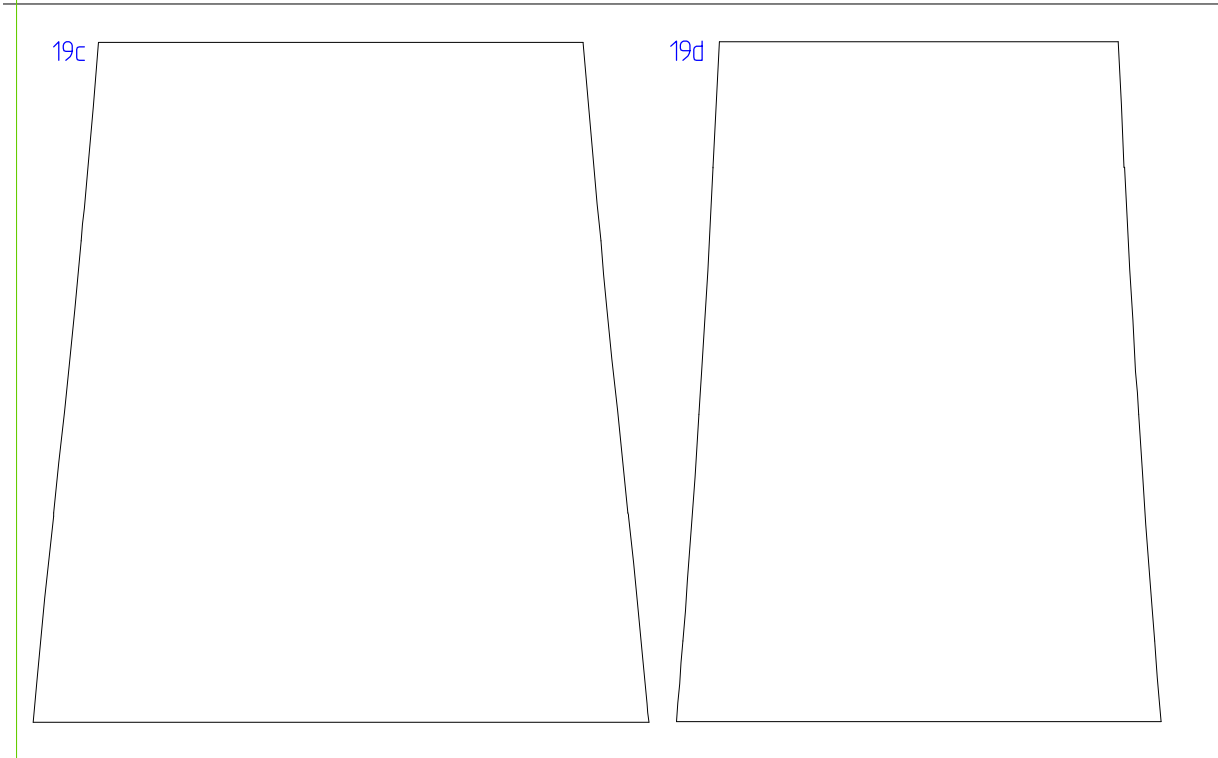
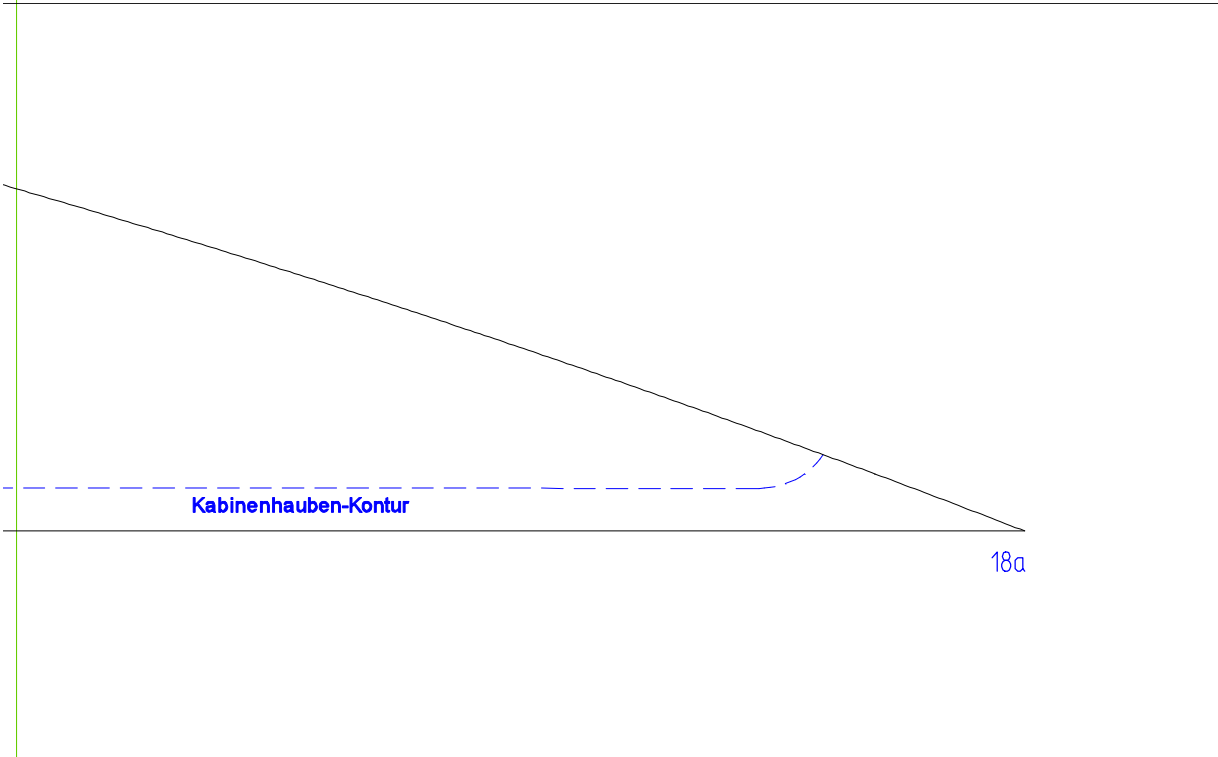
+

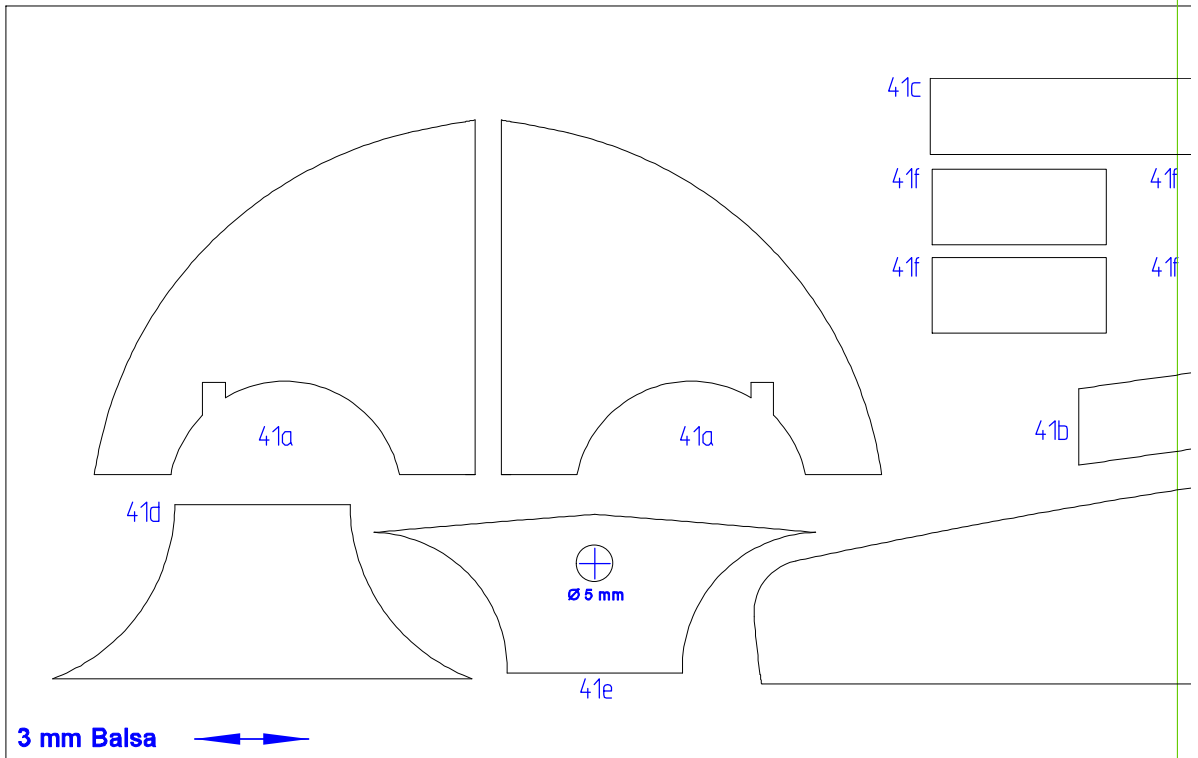
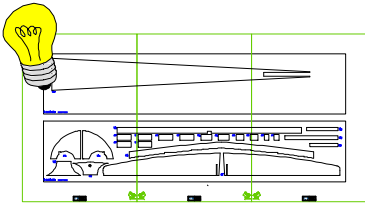
Ø 6 mm

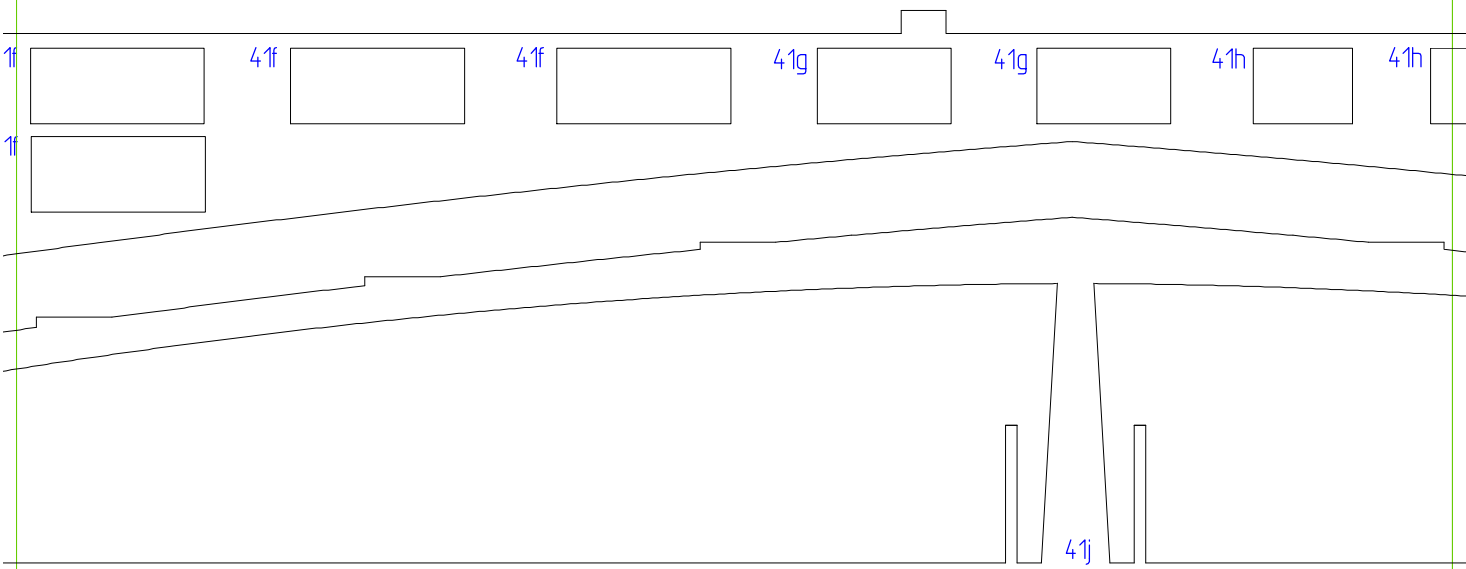
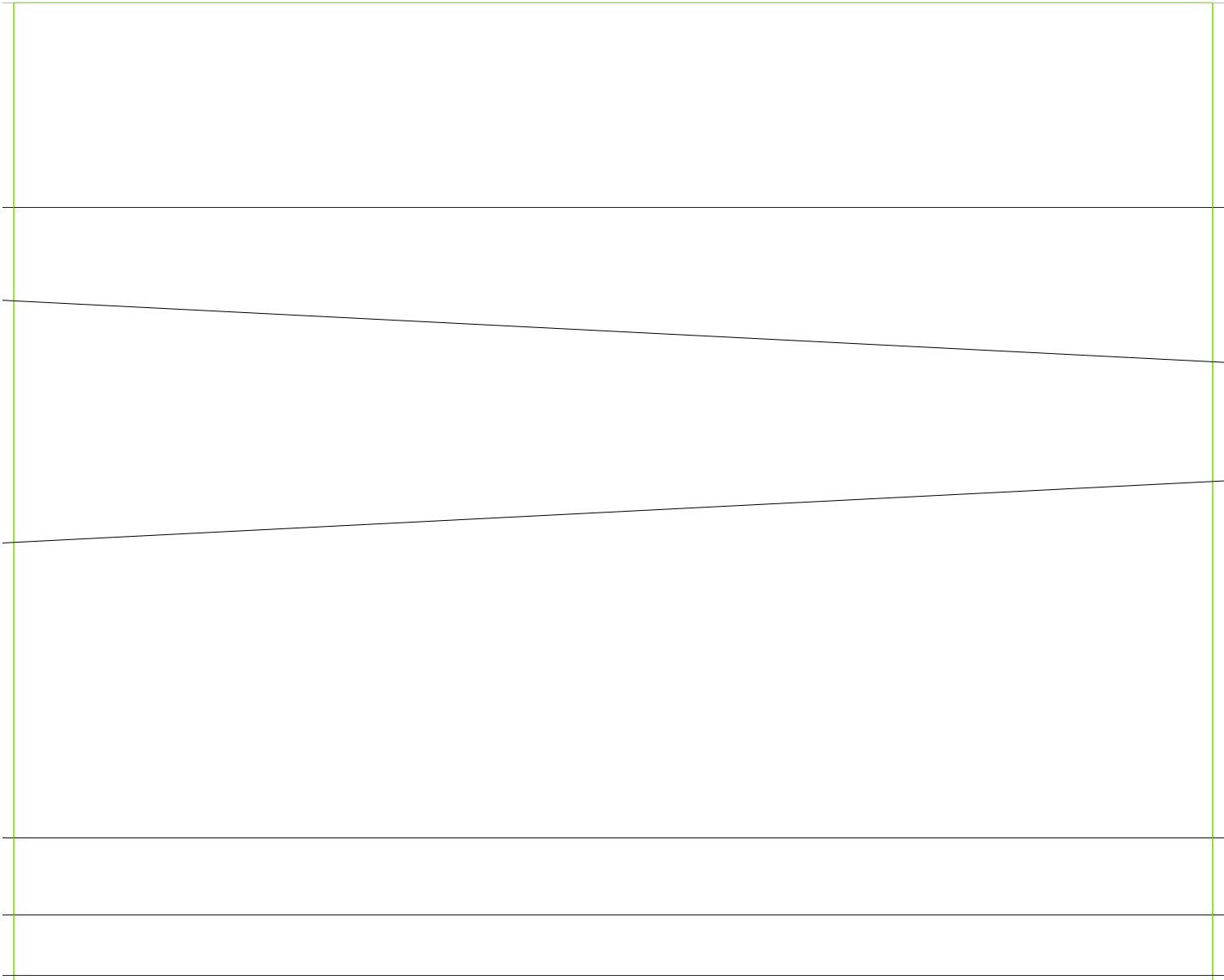


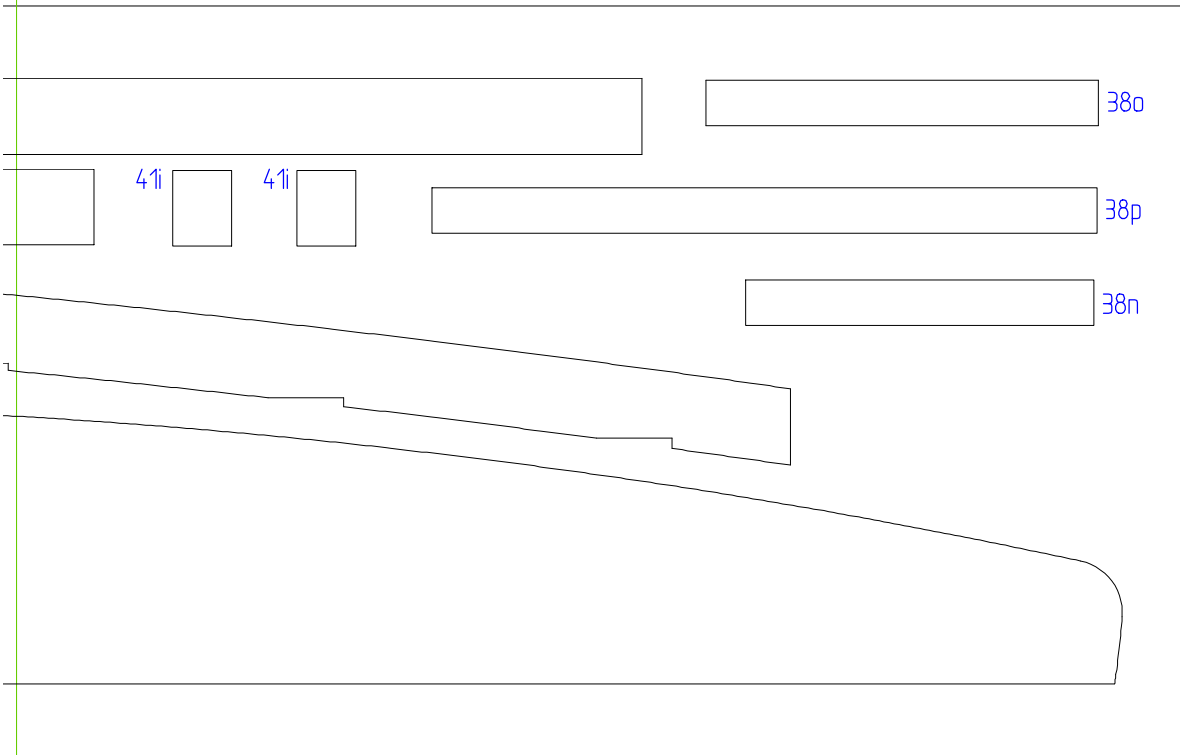
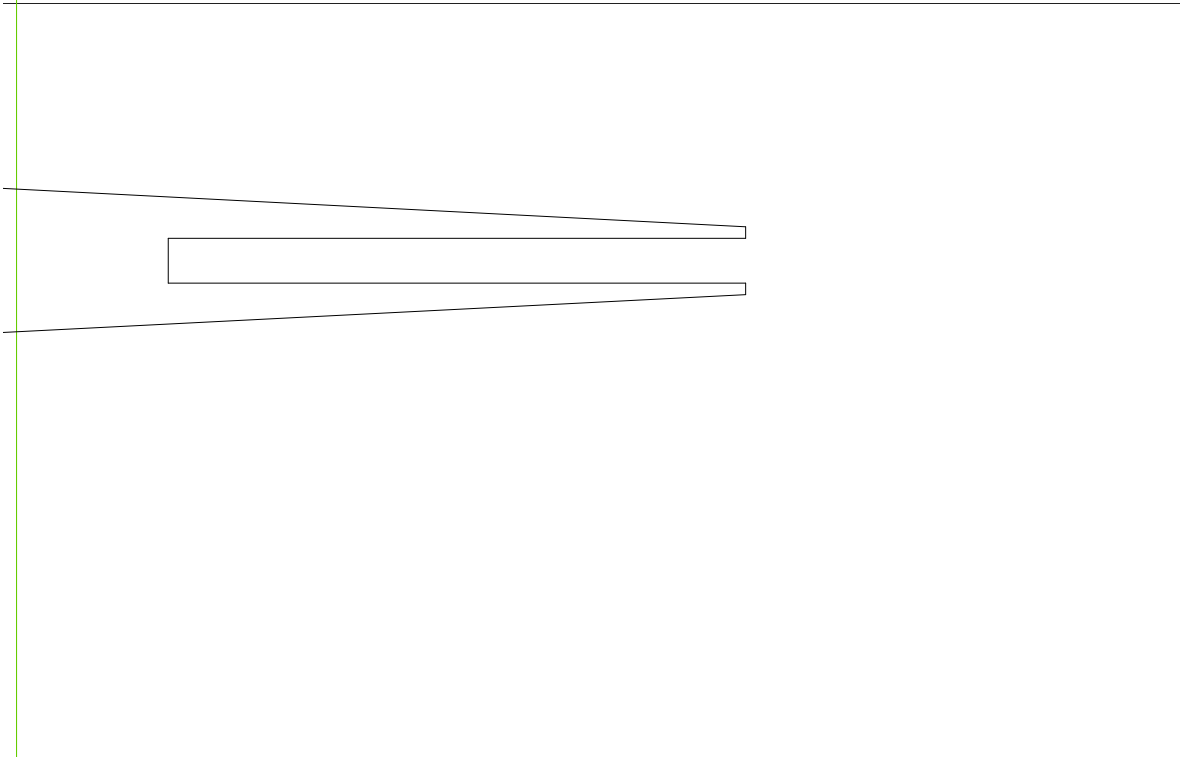
Ø 6 mm 

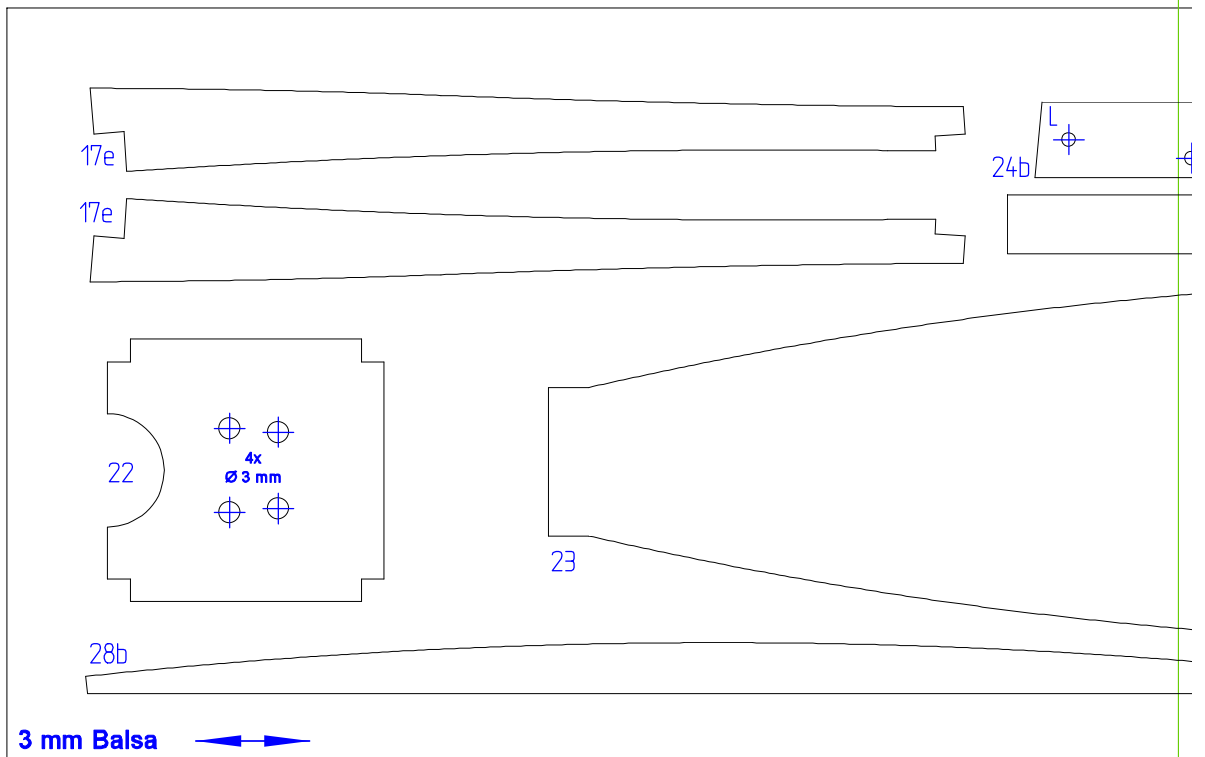
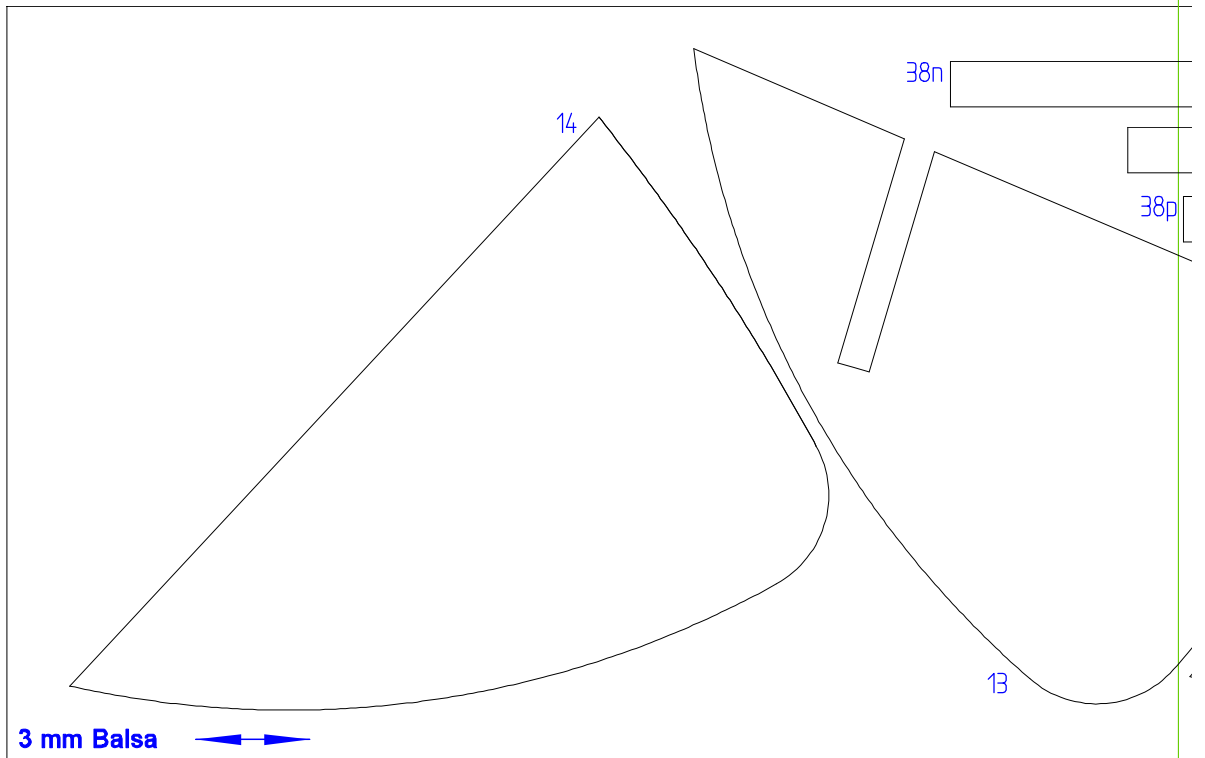
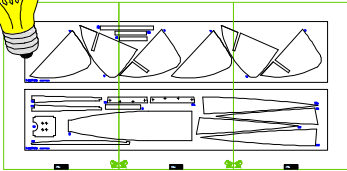
19b

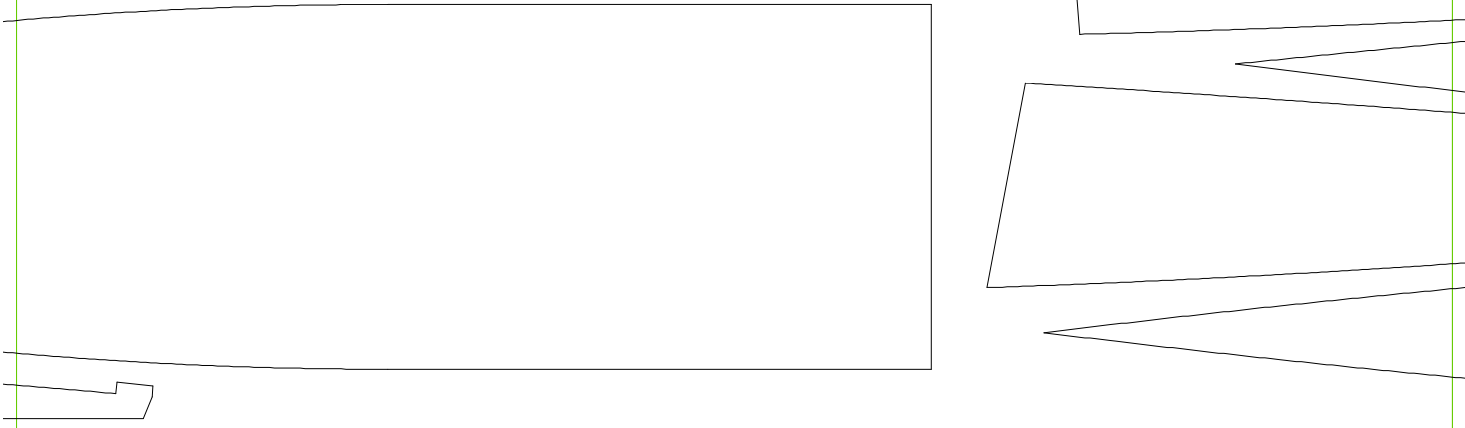
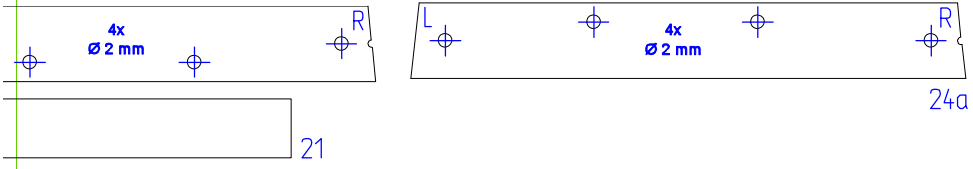
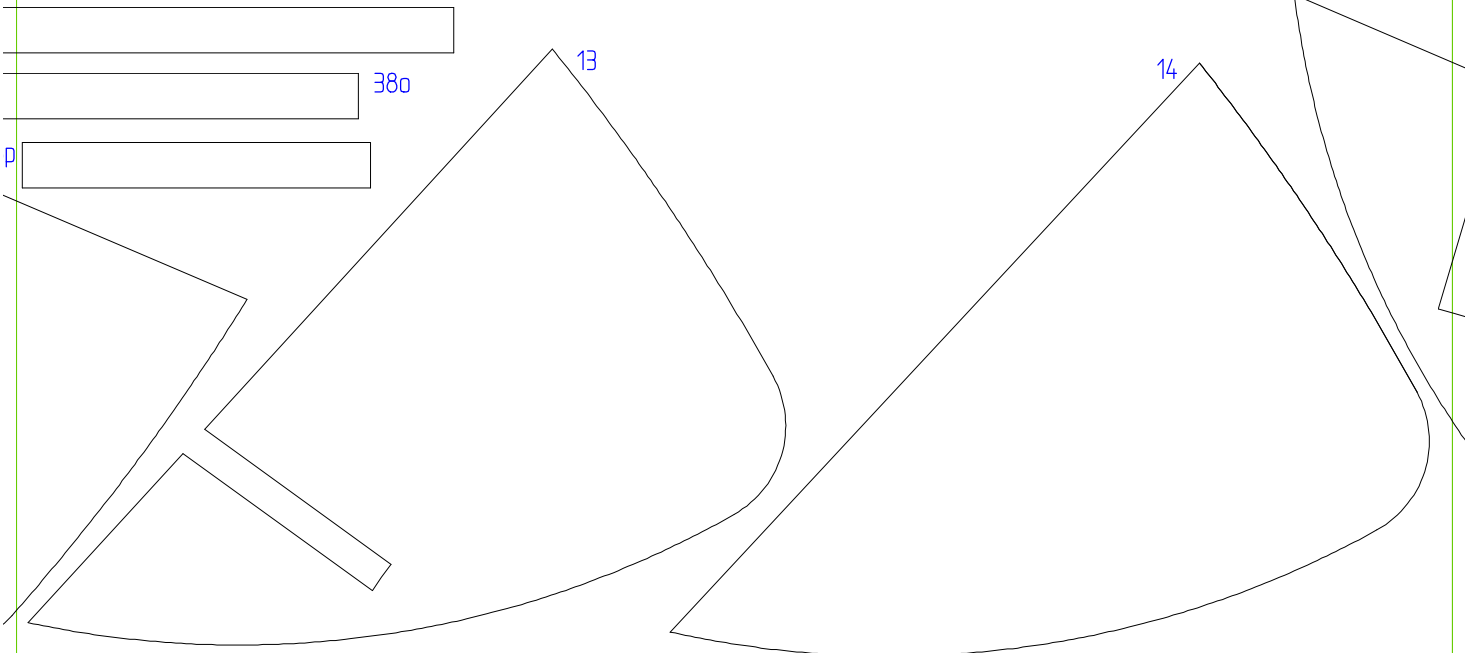


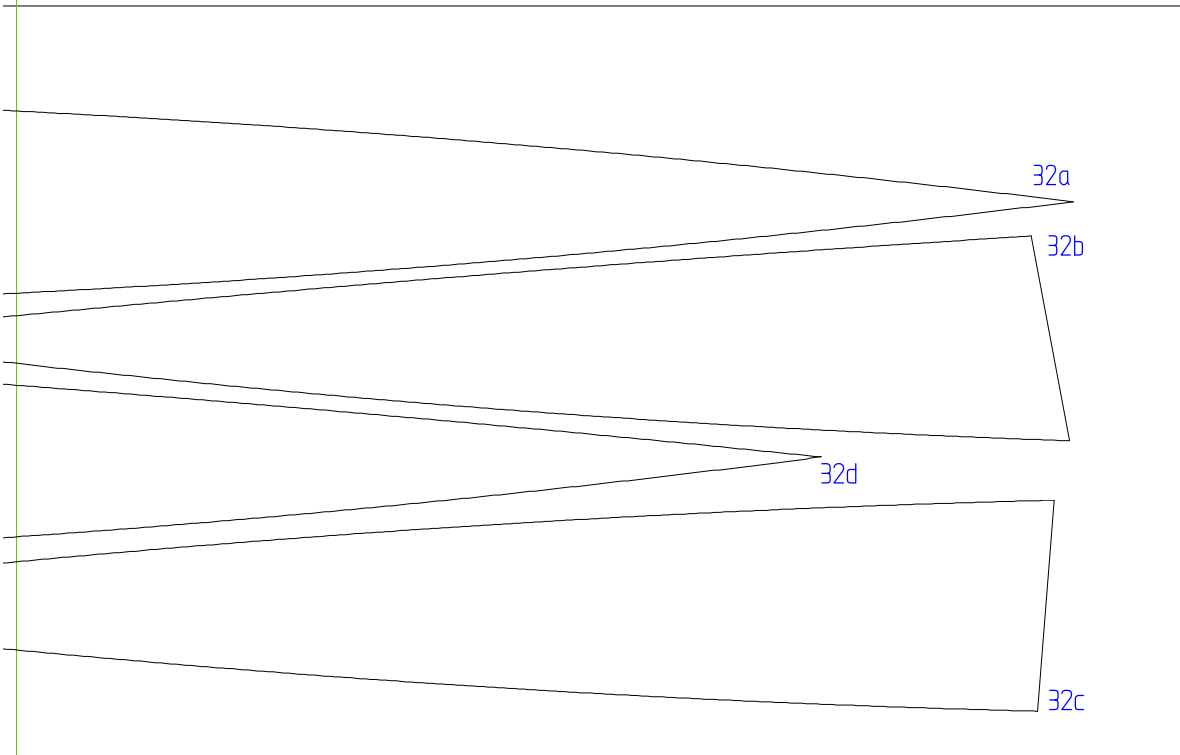
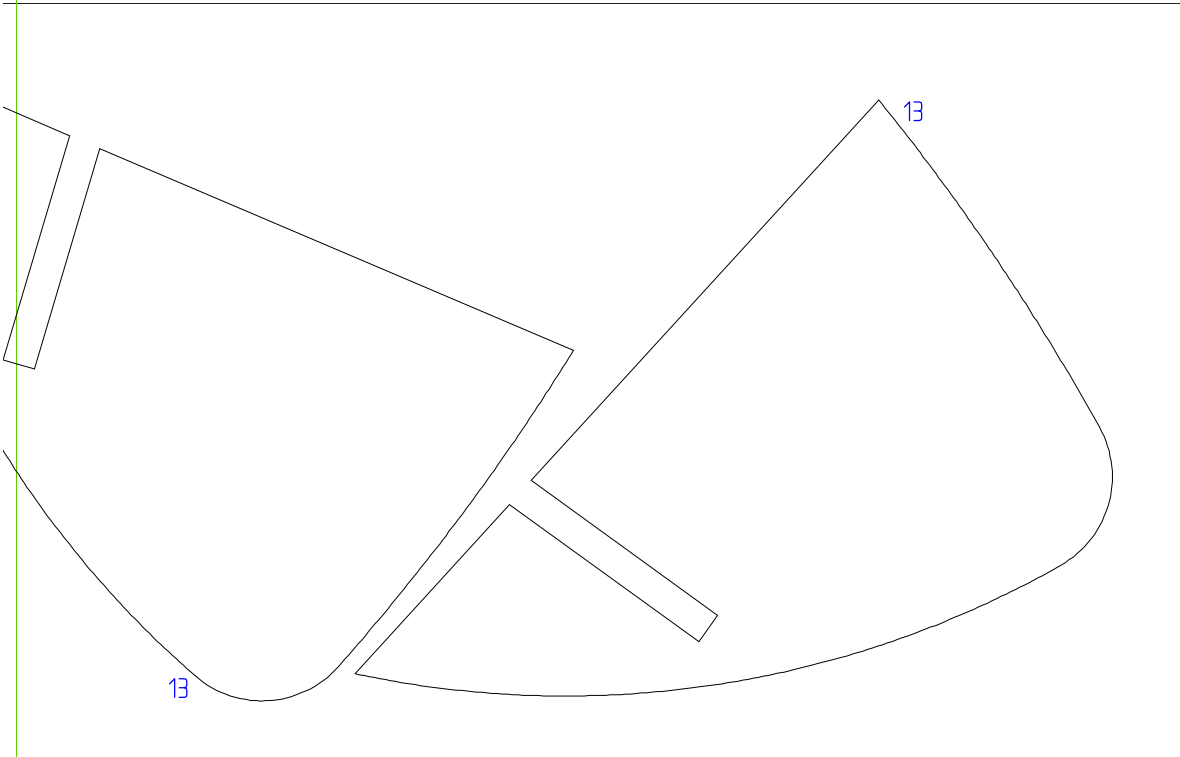


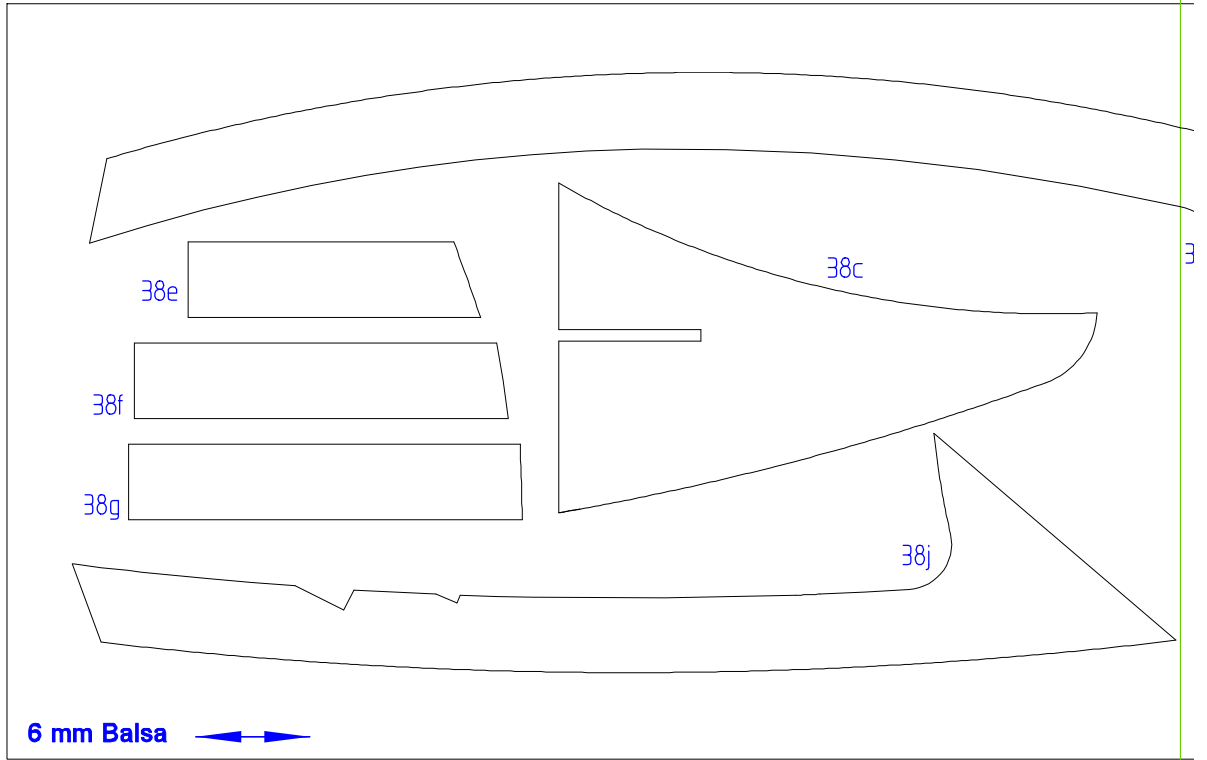
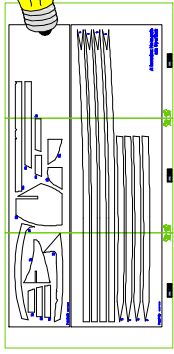








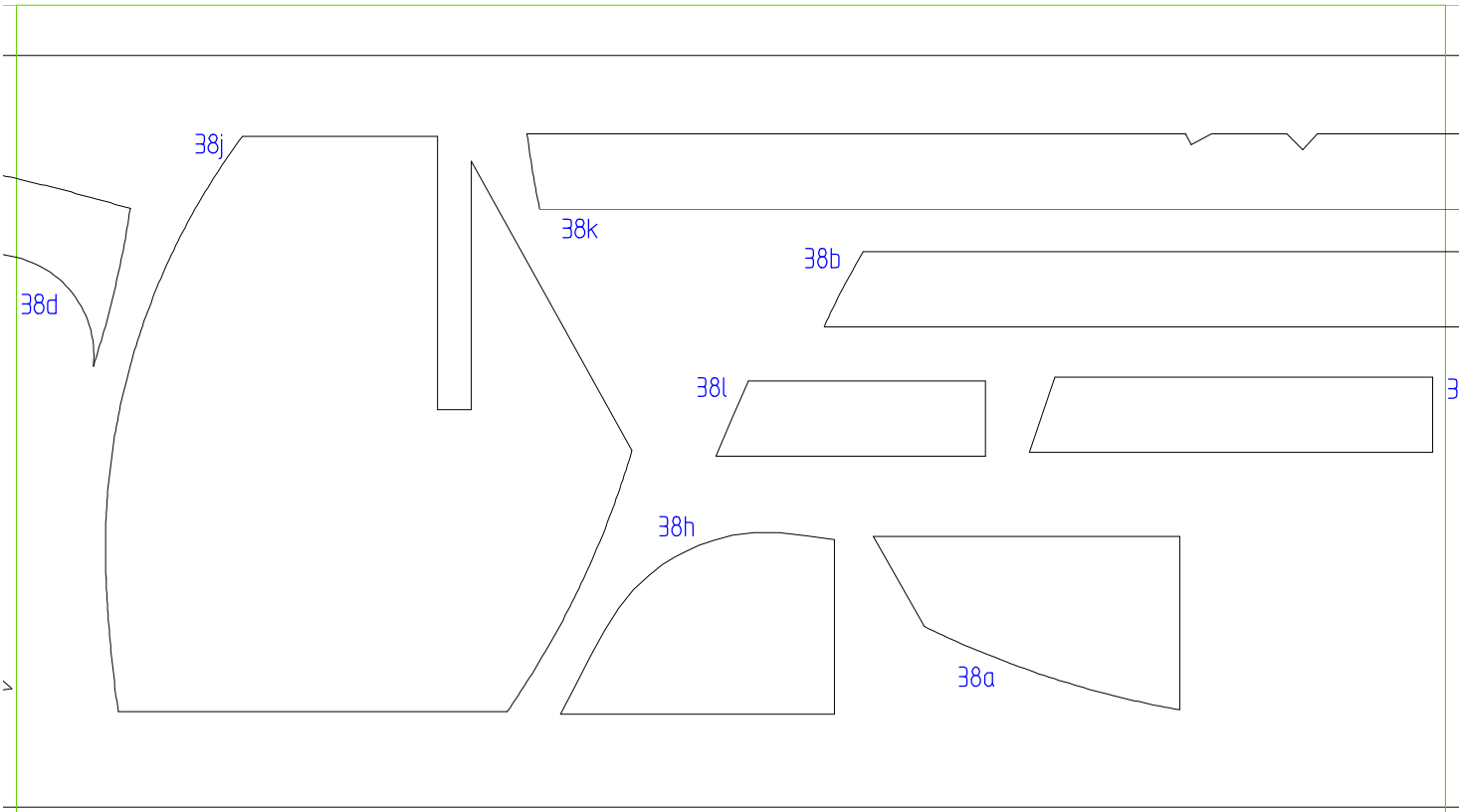




**Alternative zu Kiefernholz:
Holmgurte aus Sperrholz**



2 mm Birke



38m

