

MATERIAL PLANNING GUIDE

About this Guide...

This guide has been developed to help you minimize the material you'll need to build your Sonex - an important part of keeping the total cost of your project low. The accompanying illustrations show how the parts can be laid out on each sheet of aluminum to minimize waste. However, it is not necessary to follow this guide to successfully complete your aircraft.

Other things to keep in mind which can considerably reduce the cost of building the Sonex are:

- ✓ Shipping costs add up quickly - especially on items which must be transported by truck. It is in your best interest to order all of the material at once to minimize shipping costs. At the very least order all of the 4' x 12' sheets of aluminum at the same time as they must be shipped by truck.
- ✓ Mistakes will occur but their effect on the cost of your project can be minimized by remembering that good, small parts can be made from bad, big parts.
- ✓ Some of the material needed to build the Sonex is required in very small quantities. You may be able to beg or buy what little material you need from other builders in your area. Network!
- ✓ Use local sources, if available, when purchasing your materials. You can avoid high shipping costs if you can pick the material up yourself.
- ✓ Shop around! Prices vary and some suppliers offer quantity discounts.

Though every effort has been made to make this guide as accurate as possible, this is only a guide and not a guarantee. If you discover significant errors or omissions, please bring them to our attention.

Note: The following materials are not included in this list. Hardware (rivets, fittings, bolts, nuts, etc.), 4130 steel tubing for engine mount / gear brackets, titanium gear legs, and the spar caps (spar caps must be purchased from Sonex Aircraft, LLC).

Material List

6061-T6 Aluminum Sheet¹

T x W x L.....	Qty
.025 x 48" x 144"	11 pieces
.032 x 48" x 144"	2 pieces
.032 x 48" x 72"	1 piece
.060 x 12" x 12"	1 piece
.090 x 24" x 48"	1 piece
.125 x 24" x 48"	1 piece
.190 (.188) x 12" x 36"	1 piece

6061-T6 Aluminum Bar

T x W x L.....	Qty
1" x 1.25" x 12"	1 piece

6061-T6 Aluminum Angle²

T x W x W x L.....	Qty.
.125 x 1" x 1" x 96"	5 pieces
.125 x 1" x 1" x 112"	4 pieces
.125 x 1.5" x 1.5" x 96"	1 piece
.125 x 1.5" x 1.5" x 48"	1 piece
.125 x 2" x 2" x 96"	1 piece
.125 x 2" x 2" x 48"	1 piece
.125 x 2.5" x 2.5" x 96"	1 piece
.1875 x 2" x 2" x 24"	1 piece
.1875 x 2.5" x 2.5" x 96"	1 piece
.1875 x 2.5" x 2.5" x 48"	1 piece

Miscellaneous

Material.....	Qty
.049 x .75" Sq. Tube, 6061-T6, 48" Lg. ...	1 piece
.058 x 0.5" Sq. Tube, 6061-T6, 96" Lg..	2 pieces
.016 Stainless Sheet, 36" x 48"	1 piece
Piano Hinge, MS20257P3 x 72"	9 pieces ³
Aluminum Rod, 6061-T6, .5" Dia. x 72"	1 piece

1. See page 2 of 6 for aluminum sheet optimization.
2. See page 6 of 6 for aluminum angle cut list.
3. See page 6 of 6 for piano hinge cut list.

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Sonex Aircraft, LLC
511 Aviation Road
Oshkosh, WI 54903
Phone (920) 231-8297
fax (920) 426-8333
email: info@sonexaircraft.com
www.sonexaircraft.com

MATERIAL PLANNING GUIDE (cont.)

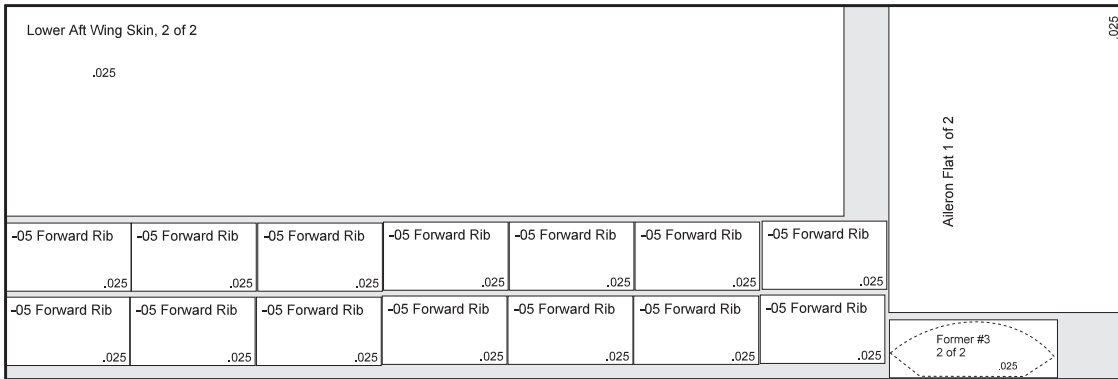
Sheet aluminum layout...

The following illustrations depict a material-efficient pattern for cutting the parts out of the aluminum sheets. The bold outlines filled with gray represent the individual sheets of aluminum. The size of each sheet of aluminum is identified above each illustration. The thin outlines filled with white represent the individual parts of the Sonex. The parts are identified in one of two ways: by Sonex part number or by description. Gray areas

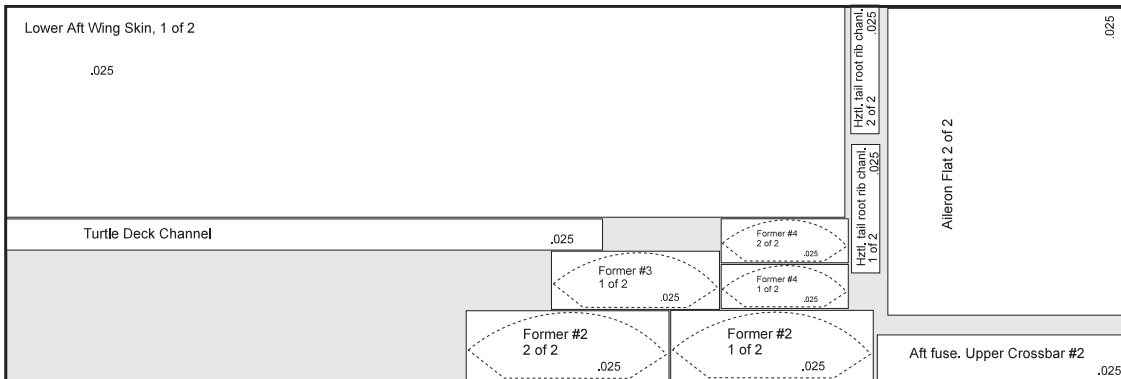
represent extra material which can be used for the miscellaneous small parts not specifically illustrated. It is suggested that the large parts be cut from each sheet before the small parts are removed.

Please note that the .060 and .090 6061-T6 sheets, as well as the .016 stainless steel, are not illustrated. The few parts needed from these materials can be easily produced from the blank sizes given in the material list.

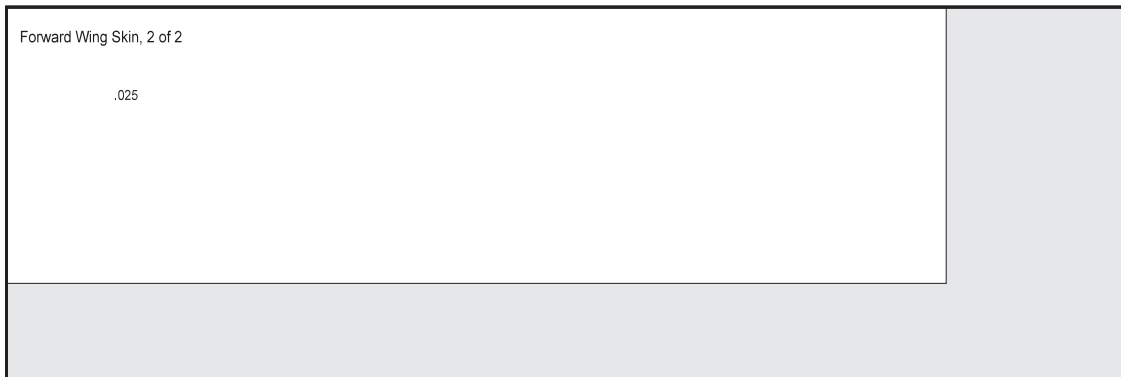
.025 6061-T6 aluminum sheet, 4' x 12'



.025 6061-T6 aluminum sheet, 4' x 12'



.025 6061-T6 aluminum sheet, 4' x 12'



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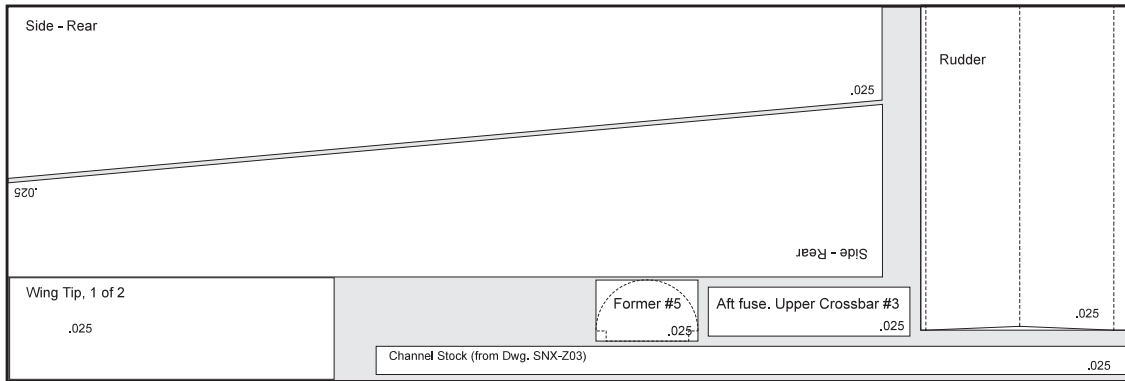
Sonex Aircraft, LLC
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 Oshkosh, WI 54903
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 email: info@sonexaircraft.com
 www.sonexaircraft.com

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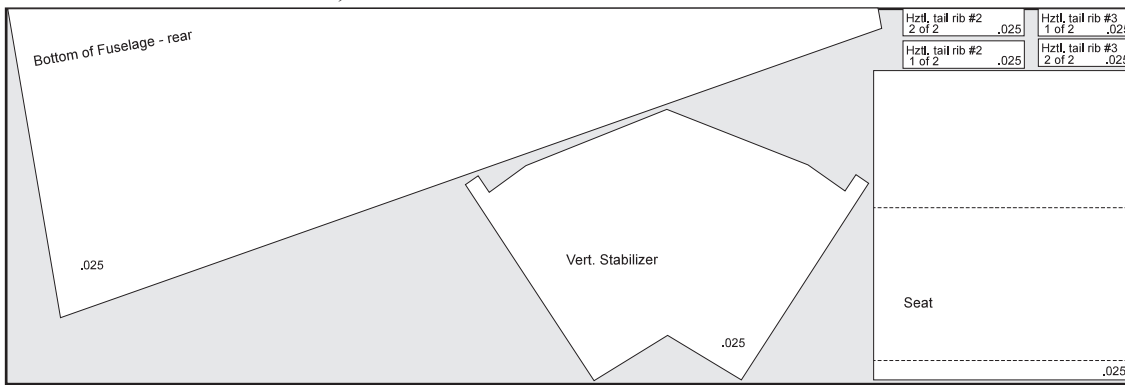
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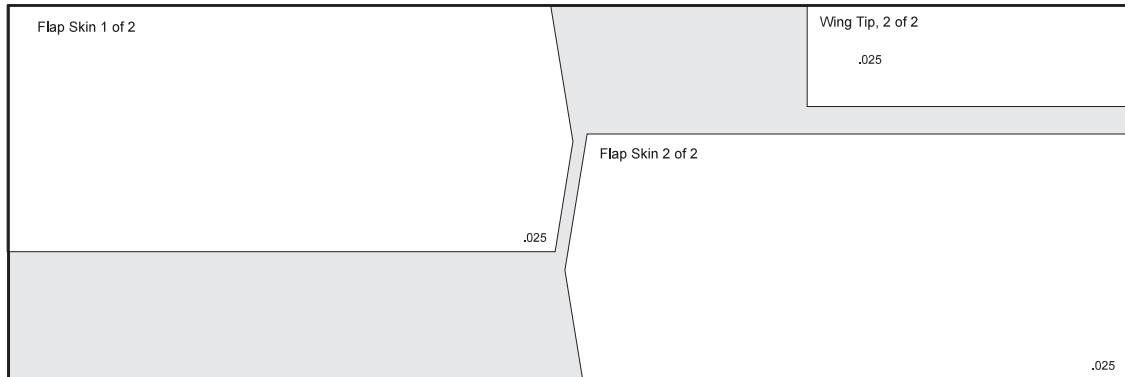
.025 6061-T6 aluminum sheet, 4' x 12'



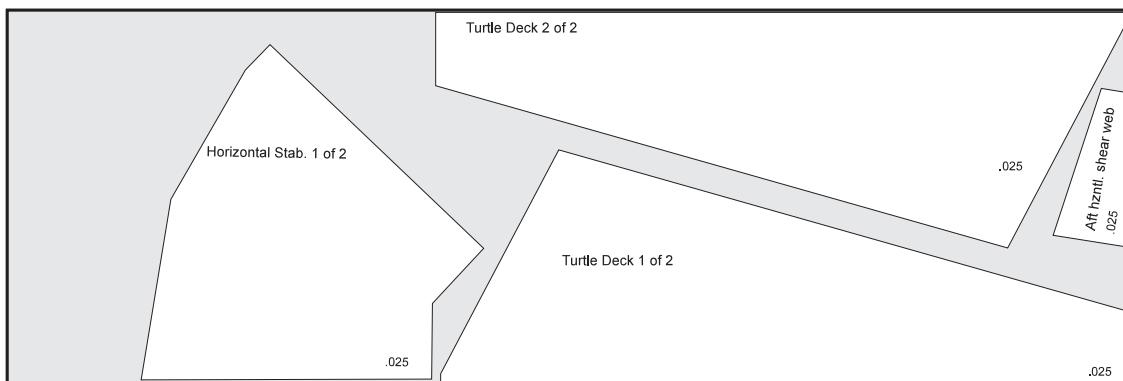
.025 6061-T6 aluminum sheet, 4' x 12'



.025 6061-T6 aluminum sheet, 4' x 12'



.025 6061-T6 aluminum sheet, 4' x 12'



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.025 6061-T6 aluminum sheet, 4' x 12'

Upper Aft Wing Skin, 2 of 2 .025					Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025
Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025	Shoulder Harness Gussel 520 .025		
Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025	Shoulder Harness Gussel 520 .025		

.025 6061-T6 aluminum sheet, 4' x 12'

Upper Aft Wing Skin, 1 of 2 .025					Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025
Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025	Aft fuse, Upper Crossbar #4 .025		
Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025	Aft Wing Rib .025	Aft fuse, Upper Crossbar #4 .025		

.025 6061-T6 aluminum sheet, 4' x 12'

Angle Stock (from dwg. SNX-z02) .025	Lower Fuselage Cross Ties .025						
Elevator Flat 2 of 2 .025			Elevator Flat 1 of 2 .025		Horizontal Stab. 2 of 2 .025		

.025 6061-T6 aluminum sheet, 4' x 12'

Forward Wing Skin, 1 of 2 .025								-05 Forward Rib .025	-05 Forward Rib .025
								-05 Forward Rib .025	-05 Forward Rib .025
-05 Forward Rib .025	-05 Forward Rib .025	-05 Forward Rib .025	-05 Forward Rib .025	-05 Forward Rib .025	-05 Forward Rib .025	-05 Forward Rib .025	-05 Forward Rib .025	-05 Forward Rib .025	-05 Forward Rib .025

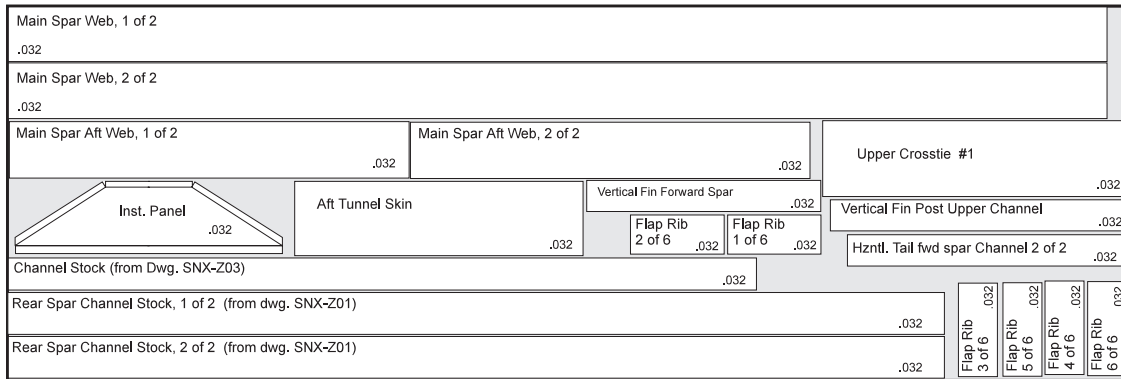


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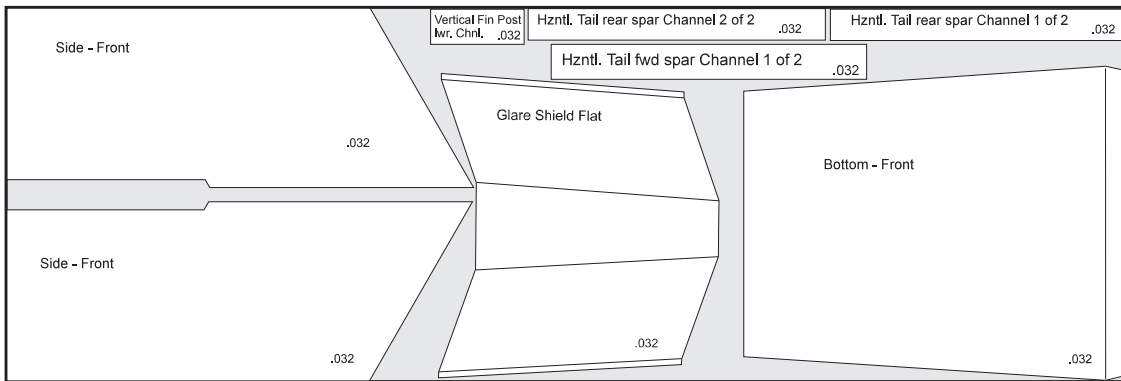
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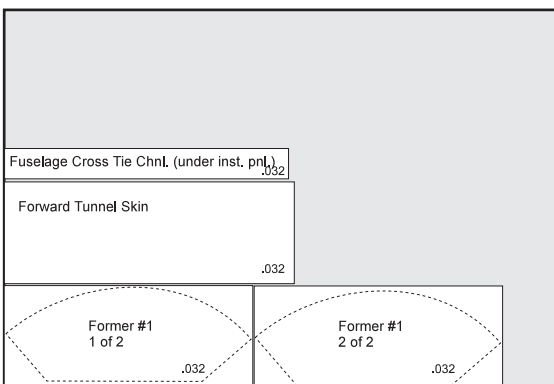
.032 6061-T6 aluminum sheet, 4' x 12'



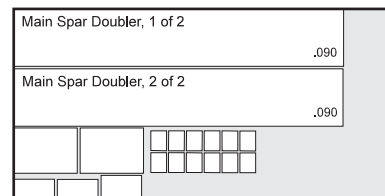
.032 6061-T6 aluminum sheet, 4' x 12'



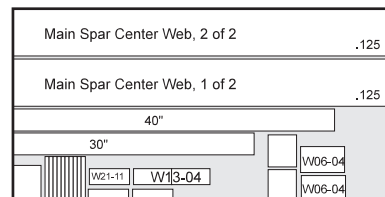
.032 6061-T6 aluminum sheet, 4' x 6'



.090 6061-T6 aluminum, 2' x 4'



.125 6061-T6 aluminum, 2' x 4'



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Aluminum Angle Layout...

Building the Sonex requires a number of different sizes of aluminum angle. As most sizes are needed in such small quantities that only a single length of each size needs to be ordered, using this material efficiently is not a problem.

However, the .125 x 1" x 1" aluminum angle is required in greater quantity. To help you get the most parts from the least amount of material we suggest the following cut list be followed.

Cut List for the .125" x 1" x 1" angle

Important: Verify all dimensions with the plans before cutting.

Piece #1 - 96" long

Part	Length	Qty
Upper longeron	60"	1 piece
Gear angle	34"	1 piece

Piece #2 - 96" long

Part	Length	Qty
Upper longeron	60"	1 piece
Forward angle	24"	1 piece
Lower support angle	9"	1 piece

Piece #3 - 96" long

Part	Length	Qty
Lower longeron	48"	1 piece
Forward angle	24"	1 piece
Rudder pedal vertical	20"	1 piece
Part no. W11-10	2.75"	1 piece

Piece #4 - 96" long

Part	Length	Qty
Lower longeron	48"	1 piece
Rudder pedal vertical	20"	1 piece
Lower support angle	9"	1 piece
Part no. W11-09	7.125"	2 pieces
Part no. W11-10	2.75"	1 piece

Piece #5 - 96" long*

Part	Length	Qty
Part no. W11-11	7.125"	2 pieces

**There will be approximately 81" of leftover material from this piece. This provides extra material for parts which may have been missed when this guide was developed, and additional material to correct any mistakes you might make.*

Optimizing the Piano Hinge...

Important: Verify all dimensions with the plans before cutting.

Piece #1 - 72" long

Where used:	Length	Qty
Ailerons	36"	2 pieces

Piece #2 - 72" long

Where used:	Length	Qty
Left Flap	72"	1 piece

Piece #3 - 72" long

Where used:	Length	Qty
Right Flap	72"	1 piece

Piece #4 - 72" long

Where used:	Length	Qty
Elevators	36"	2 pieces

Piece #5 - 72" long

Where used:	Length	Qty
P13-10	38"	1 piece
F08-04	33"	1 piece

Piece #6 - 72" long

Where used:	Length	Qty
T10-06	28.5"	1 piece
T10-07	11.5"	1 piece
T13-07	40.5"	1 piece
P13-08	26"	1 piece

Piece #7 - 72" long

Where used:	Length	Qty
F14-03	20"	1 piece
P13-13	4"	1 piece
Wheel Fairings	24"	2 piece

Piece #8 - 72" long

Where used:	Length	Qty
P13-07	17"	1 piece
P13-09	18"	1 piece
F08-05	34"	1 piece

Piece #9 - 72" long

Where used:	Length	Qty
F10-04	33.5"	1 piece
F08-04	32.5"	1 piece
Canopy	26"	1 piece
Trim tab	11"	1 piece



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