

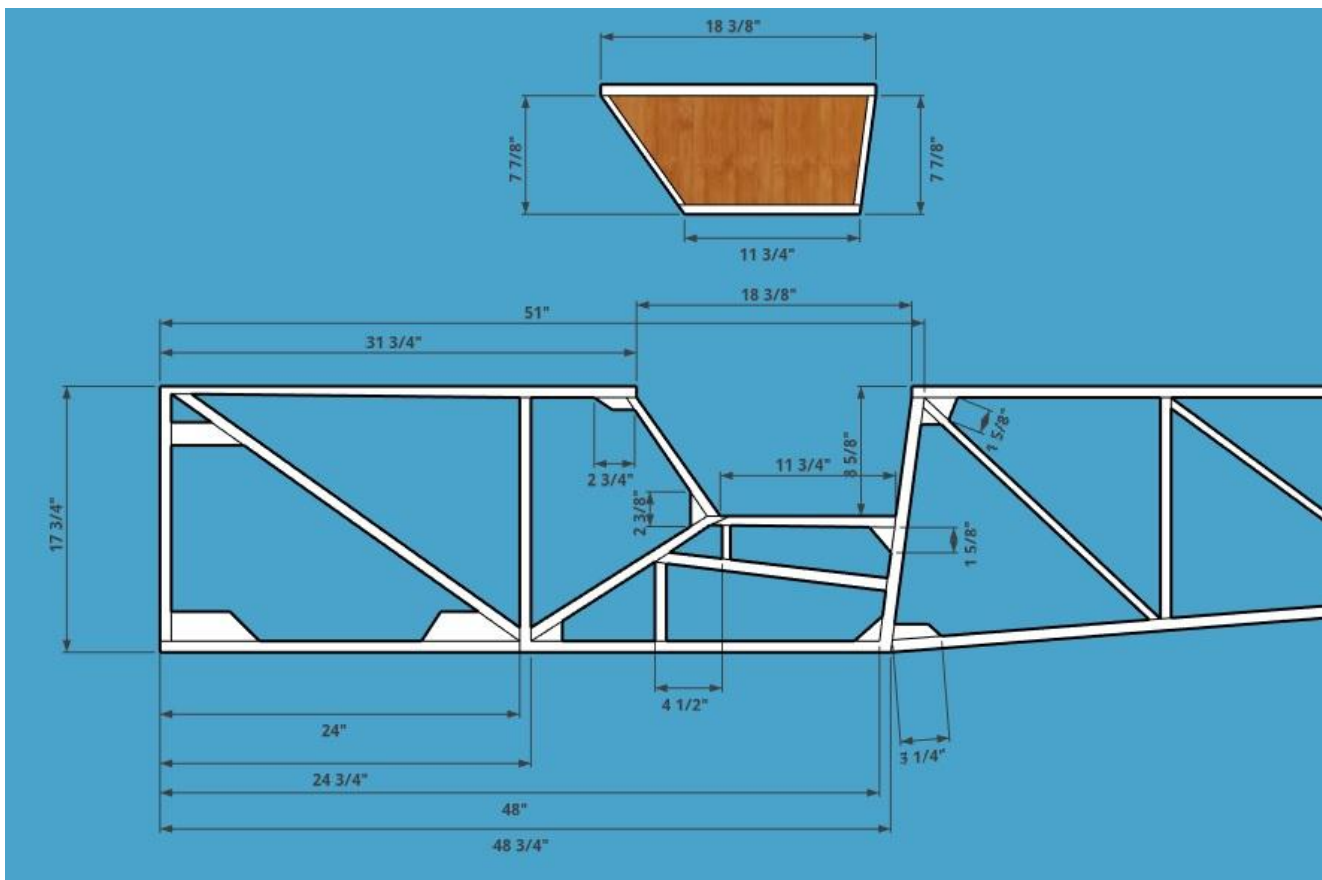
# Approved Zing Door Modification

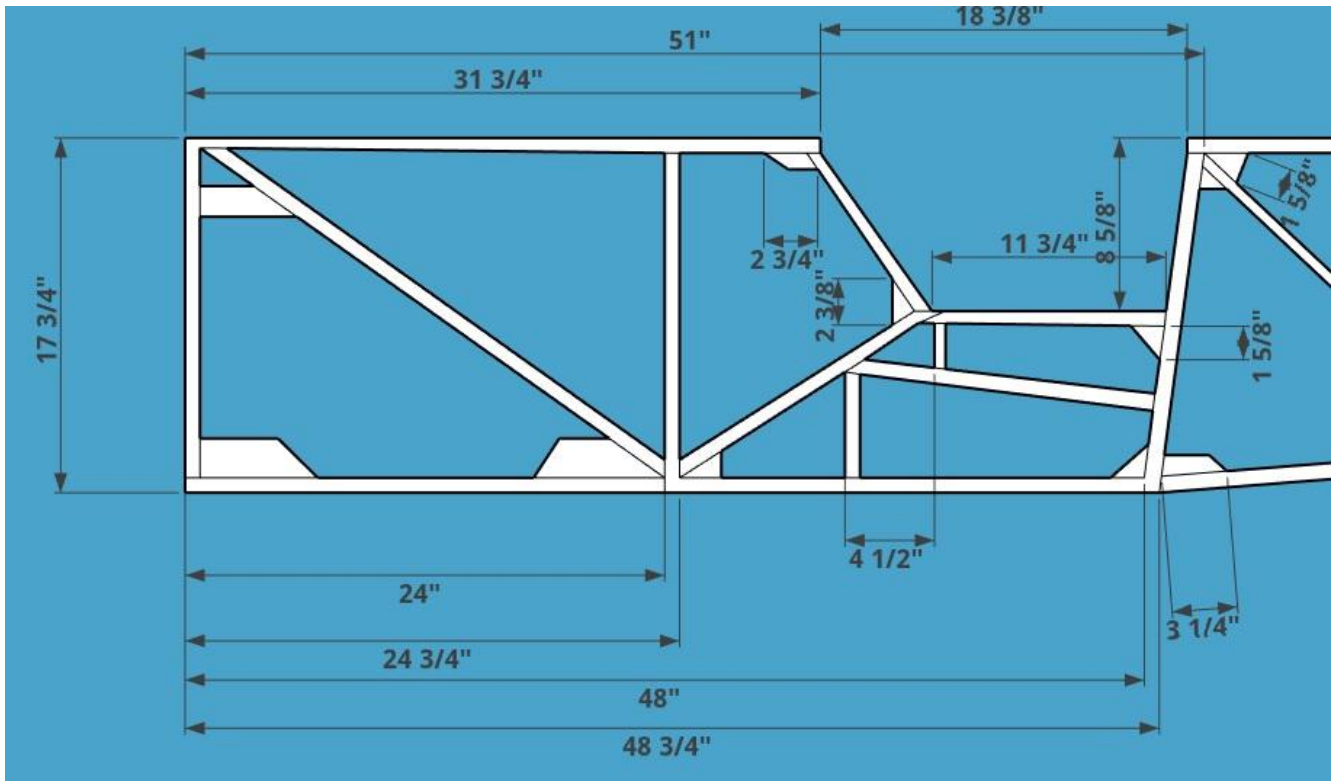
Modified 2/1/2018

The Zing as originally designed did not include a door. However, without a door entering and exiting the aircraft could be challenging and potentially introduce the unfortunate chance of accidentally causing damage to the airframe or pilot. The following modifications are approved for the forward fuselage on “one side only.” The builder must select which side is most beneficial for a door to be built. As an example, if a ½ VW engine was used with the propeller turning opposite the direction of most certified engines, the pilot may choose to hand prop from behind the propeller. In such a case the engine and fuselage should be to the right of the pilot, and thus the left fuselage side would be the optimal location for a door. The same rational would apply when making a similar selection with a two stroke engine that has a pull start. Determine which side the pull starter will be located and build the door into that fuselage side. This modification is not approved for a door on both sides of the fuselage!

The door option can be built at almost any point along the construction phase. The easiest would be at the time the fuselage sides are originally constructed. However, it could also be done after the airplane is finished if care is taken to sand off varnish and properly prepare joints for good epoxy adhesion. Notice that the intent of the extra support member is to divert the load path that is normally carried by the top longeron. The changes needed are sufficient to properly carry the load during flight, at landing, and in the very unfortunate event of a forced hard landing. The extra supports, hinges, and latching system will add weight, but the weight should be minimal.

The diagram below represents the changes needed to “one fuselage side.” All members shown should be ¾” x ¾” for the actual front fuselage structure unless the plans state otherwise. Additional corner blocks should be added in the locations identified. Slight deviations from these measurements are not recommended. Measurement tolerances should be within 1/8.” If this modification is done later in your build, simply trace the outline of the new door onto the fuselage side using a light pencil per the dimensions. Then carefully cut out the door using a very fine tooth saw such as a Japanese flush cut saw or even a hacksaw blade. A jig saw is not recommended due to the potential for overcutting members by accident. Cutting out the door opening from an existing fuselage that has already been skinned should not be rushed as there is little margin for error.





It is advised that the door should be made from new stock, rather than attempting to use the “cut out” from fuselage side if this modification is made at a later time in the total build. First make the modifications to the fuselage side, and then build the door. This will account for extremely small variations that seem to always occur during building. A template can then be made of the door opening using a piece of scrap card board or poster board. That outline can be transferred to your building table and used to make a perfect door frame to fit within the door opening.

The actual door frame should be constructed using 3/4" x 3/4" pine or spruce for the top rail, and 3/4" x 1/2" pine or spruce for the two side rails and bottom rail. Then sheath the outside with 1/16" plywood. Though not shown in the drawings, very small corner blocks should be added to all four corner joints. As the door is not structural, very small furniture hinges purchased from any local home center can be used. Alternatively, you could use aircraft grade piano hinge. The latching system can be of your own design as long as no bolts, screws, or any other fastener penetrates the top longeron of the fuselage side. You may however, fasten to corner blocks. Our general recommendation is to copy the door systems seen in other wood/metal and fabric parasol airplanes such as the Pietenpol, Heath Parasol, or a Piper Cub. There is room for creativity with the door hinging and latching system.

