Two Aluminum stays are required in order to make sure that the top and bottom head tube and seat tube aligners are straight and The other is 15 inches. Holes are drilled so they can be bolted to the extrusions while the angle for the tubes are set, locked down, then they are removed and the nodes are put into place

This allows 360 degree access to the entire frame allowing complete welds or brazes to be made without removing the frame on aluminum or steel frames. It also allows full access to the tube joints when creating carbon monocoque frames. This also allows ease of vacuum bagging if it is ever necessary.
All of these lend itself to a fully universal frame jig and coupled with legs that can be bolted on will yield a jig that can stand by itself.

| 0 | 0 | $30 "$ | 0 |
| :--- | :--- | :--- | :--- |
| 0 | 0 | 0 |  |


51" bottom extrusion length
$\qquad$

Each Extrusion is two inches wide and one inch tall. The connector flanges are also 2" wide and 1" tall. The flanges that accept the alignmen nodes are also 2 " wide and 1 " tall.

Everything that is highlighted in blue is either a bolt, nut or fitting. Everything in black is an extrusion, flange nut or fitting. Everything in black is an extrusion, flange or spacer. Everything in black is also a part of the
frame. Everything in green is a part of the bicycle frame to be built.

The extrusions can be built out of 8020 aluminum
extrusion \#1530 (3"x $1.5^{\prime \prime}$ ) or \#1020 (2"x $1^{\prime \prime}$ )
\#1530: \$118.90 for 145"
\#1020: \$94.38 for 242"
Total Extrusion length needed: 220" approx (Upper and lower seat and head tube aligner stays can give or take an inch or two.)

Site for Extrusions:
http://airinc.thomasnet.com
~or~
http://www.actionauto.com
For shipping purposes extrusions purchased in $242^{\prime \prime}$ length can be divided into 4 and cut down to $60.5^{\prime \prime}$ each for ease. No less than 4 lengths of at least 60 " can be cut for design to work as needed.


