OpenSCAD to model “Arco Etrusco”

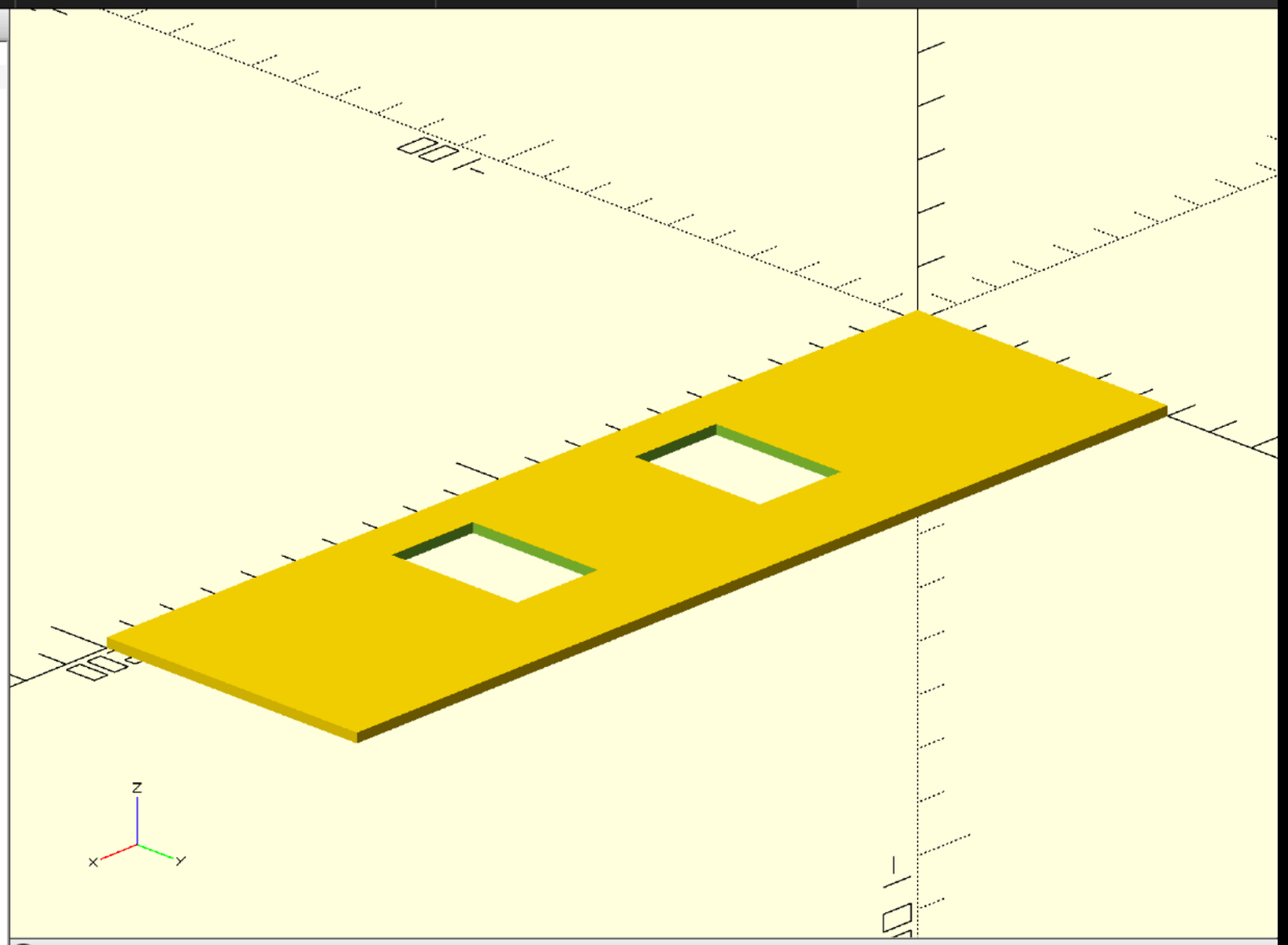
Fonte: https://commons.wikimedia.org/wiki/File:ARCO_ETRUSCO.jpg

Base

bastione.scad | cappello.scad | supporto-sinistro.scad | spicchio.scad | **base.scad**

Editor

```
1  scala=10;
2  l=20*scala;
3  c=6*scala;
4  h=0.2*scala;
5  basePoints = [
6    [ 0, 0, 0 ], [ l, 0, 0 ], [ l, c, 0 ], [ 0, c, 0 ], [ 0, 0, h ], [ l, 0, h ], [ l, c, h ], [ 0, c, h ]];
7  baseFaces = [
8    [0,1,2,3], // bottom
9    [4,5,1,0], // front
10   [7,6,5,4], // top
11   [5,6,2,1], // right
12   [6,7,3,2], // back
13   [7,4,0,3]]; // left
14 x=6*scala;
15 y=1*scala;
16 z=-.25*scala;
17 l1=2*scala;
18 c1=3*scala;
19 h1=1*scala;
20 buco1Points = [
21   [ 0+x, 0+y, 0+z ], //0
22   [ l1+x, 0+y, 0+z ], //1
23   [ l1+x, c1+y, 0+z ], //2
24   [ 0+x, c1+y, 0+z ], //3
25   [ 0+x, 0+y, h1+z ], [ l1+x, 0+y, h1+z ], [ l1+x, c1+y, h1+z ], [ 0+x, c1+y, h1+z ]]; //7
26 buco1Faces = [
27   [0,1,2,3], // bottom
28   [4,5,1,0], // front
29   [7,6,5,4], // top
30   [5,6,2,1], // right
31   [6,7,3,2], // back
32   [7,4,0,3]]; // left
33 x2=12*scala;
34 y2=1*scala;
35 z2=-.25*scala;
36 buco2Points = [
37   [ 0+x2, 0+y2, 0+z2 ], [ l1+x2, 0+y2, 0+z2 ], [ l1+x2, c1+y2, 0+z2 ], [ 0+x2, c1+y2, 0+z2 ],
38   [ 0+x2, 0+y2, h1+z2 ], [ l1+x2, 0+y2, h1+z2 ], [ l1+x2, c1+y2, h1+z2 ], [ 0+x2, c1+y2, h1+z2 ]];
39 buco2Faces = [
40   [0,1,2,3], // bottom
41   [4,5,1,0], // front
42   [7,6,5,4], // top
43   [5,6,2,1], // right
44   [6,7,3,2], // back
45   [7,4,0,3]]; // left
46 difference(){
47   polyhedron( basePoints, baseFaces );
48   polyhedron( buco1Points, buco1Faces );
49   polyhedron( buco2Points, buco2Faces );}
```



Console

```
Compiling design (CSG Tree generation)...
Compiling design (CSG Products generation)...
Geometries in cache: 7
Geometry cache size in bytes: 10568
CGAL Polyhedrons in cache: 0
CGAL cache size in bytes: 0
Compiling design (CSG Products normalization)...
Normalized CSG tree has 3 elements
Compile and preview finished.
Total rendering time: 0 hours, 0 minutes, 0 seconds
```

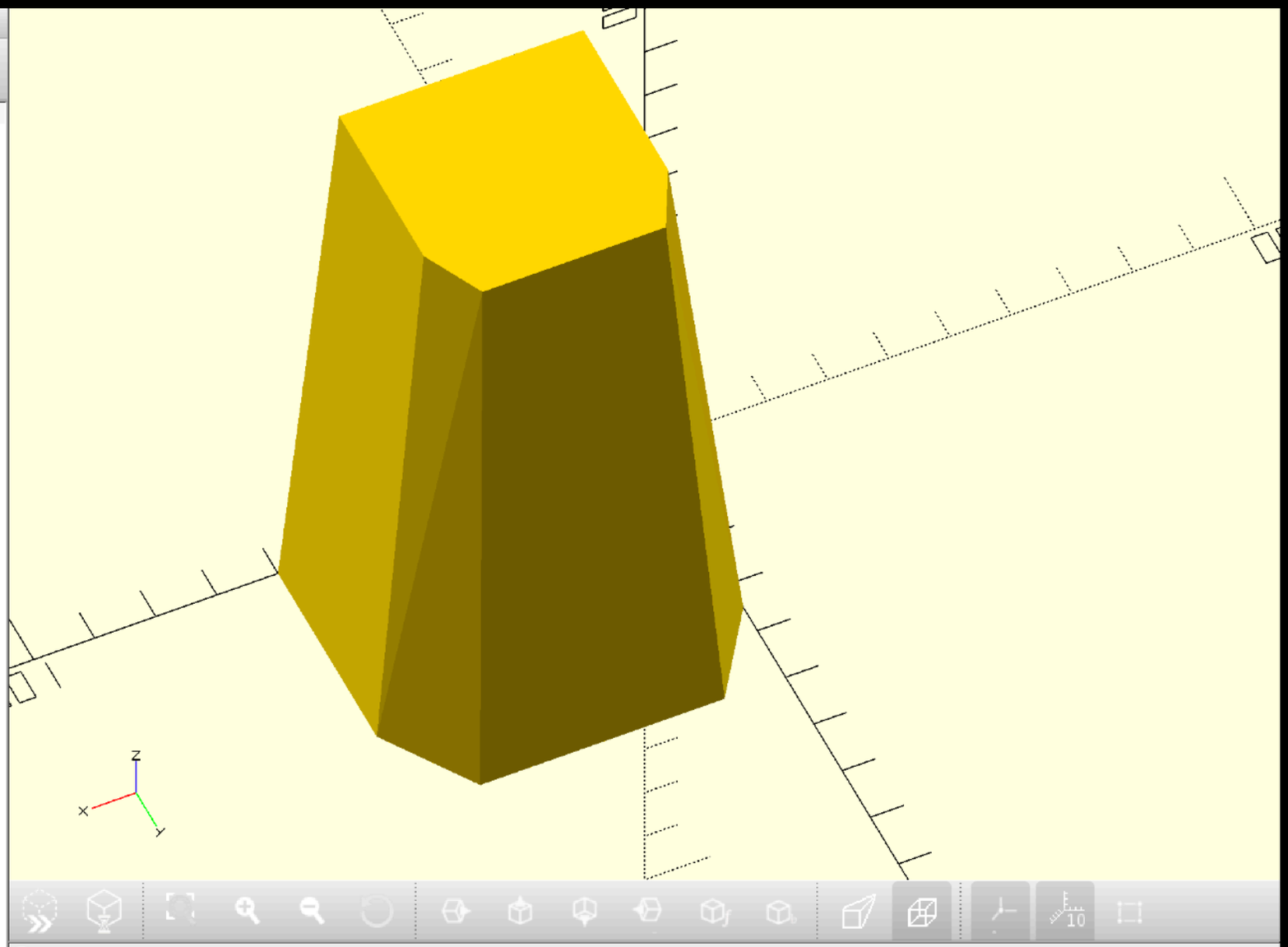
Viewport: translate = [40.17 -26.59 -24.07], rotate = [66.90 0.00 134.20], distance = 401.52 (868x636)

OpenSCAD 2019.05

Bastione

Editor

```
s=10;
h=10;
b1=[0,0,0];
b2=[6, 0, 0]*s;
b3 = [6, 3.5, 0]*s;
b4 = [5, 5, 0]*s;
b5 = [1, 5, 0]*s;
b6 = [0, 3.5, 0]*s;
a1 = [1, 0, h]*s;
a2 = [5, 0, h]*s;
a3 = [5, 3, h]*s;
a4 = [4.5, 4, h]*s;
a5 = [1.5, 4, h]*s;
a6 = [1, 3, h]*s;
polyhedron(
points=[b1,b2,b3,b4,b5,b6,a1,a2,a3,a4,a5,a6 ],
faces=[[0,1,2,3,4,5],
[6,7,1,0], //front
[11,10,9,8,7,6], //top
[7,8,2,1], // right
[8,9,3,2], // right-oblique
[9,10,4,3], // back
[10,11,5,4], // left-oblique
[11,6,0,5]] //left
, convexity = 1);
```



Console

```
Compiling design (CSG Products generation)...
Geometries in cache: 1
Geometry cache size in bytes: 1592
CGAL Polyhedrons in cache: 0
CGAL cache size in bytes: 0
Compiling design (CSG Products normalization)...
Normalized CSG tree has 1 elements
Compile and preview finished.
Total rendering time: 0 hours, 0 minutes, 0 seconds

PNG export finished: /Users/simone/lavoro/Manuela/3D/bastione.png
```

Viewport: translate = [0.00 0.00 0.00], rotate = [40.30 0.00 155.20], distance = 325.23 (905x620)

OpenSCAD 2019.05

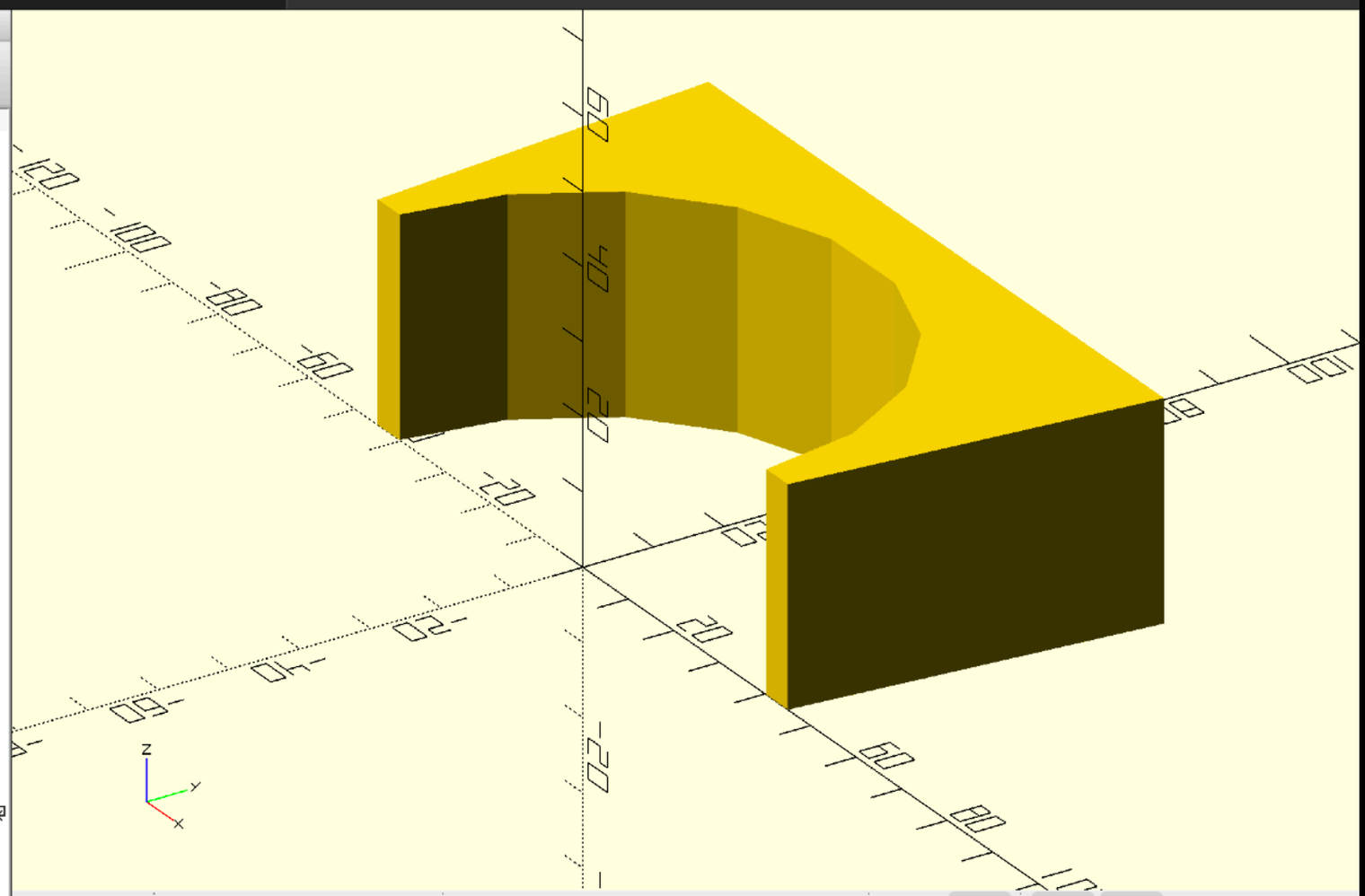
Cappello

bastione.scad

Editor

```
s=10;
d=3;
b1=[4.025, 0., 0]*s;
b2=[3.78226, 1.37663, 0]*s;
b3=[3.08333, 2.58722, 0]*s;
b4=[2.0125, 3.48575, 0]*s;
b5=[0.698934, 3.96385, 0]*s;
b6=[-0.698934, 3.96385, 0]*s;
b7=[-2.0125, 3.48575, 0]*s;
b8=[-3.08333, 2.58722, 0]*s;
b9=[-3.78226, 1.37663, 0]*s;
b10=[-4.025, 0., 0]*s;
b11=[-4.5, 0,0]*s;
b12=[-5, 5,0]*s;
b13=[5, 5,0]*s;
b14=[4.5, 0,0]*s;
a1=[4.025, 0., d]*s;
a2=[3.78226, 1.37663, d]*s;
a3=[3.08333, 2.58722, d]*s;
a4=[2.0125, 3.48575, d]*s;
a5=[0.698934, 3.96385, d]*s;
a6=[-0.698934, 3.96385, d]*s;
a7=[-2.0125, 3.48575, d]*s;
a8=[-3.08333, 2.58722, d]*s;
a9=[-3.78226, 1.37663, d]*s;
a10=[-4.025, 0., d]*s;
a11=[-4.5, 0,d]*s;
a12=[-5, 5,d]*s;
a13=[5, 5,d]*s;
a14=[4.5, 0,d]*s;
polyhedron(
points=[b1,b2,b3,b4,b5,b6,b7,b8,b9,b10,b11,b12,b13,b14,a1,a2,a3,
    a4,a5,a6,a7,a8,a9,a10,a11,a12,a13,a14],
faces=[[0,1,2,3,4,5,6,7,8,9,10,11,12,13],
[14,15,1,0], //front
[27,26,25,24,23,22,21,20,19,18,17,16,15,14], //top
[15,16,2,1], // right
[16,17,3,2], // right-oblique
[17,18,4,3], // back
[18,19,5,4], // left-oblique
[19,20,6,5],
[20,21,7,6],
[21,22,8,7],
[22,23,9,8],
[23,24,10,9],
[24,25,11,10],
[25,26,12,11],
[26,27,13,12],
[27,14,0,13]] //left
, convexity = 1);
```

cappello.scad



Console

```
Compiling design (CSG Tree generation)...
Compiling design (CSG Products generation)...
Geometries in cache: 2
Geometry cache size in bytes: 5488
CGAL Polyhedrons in cache: 0
CGAL cache size in bytes: 0
Compiling design (CSG Products normalization)...
Normalized CSG tree has 1 elements
Compile and preview finished.
Total rendering time: 0 hours, 0 minutes, 0 seconds
```

Viewport: translate = [1.35 13.68 12.53], rotate = [63.40 0.00 57.20], distance = 263.43 (905x592)

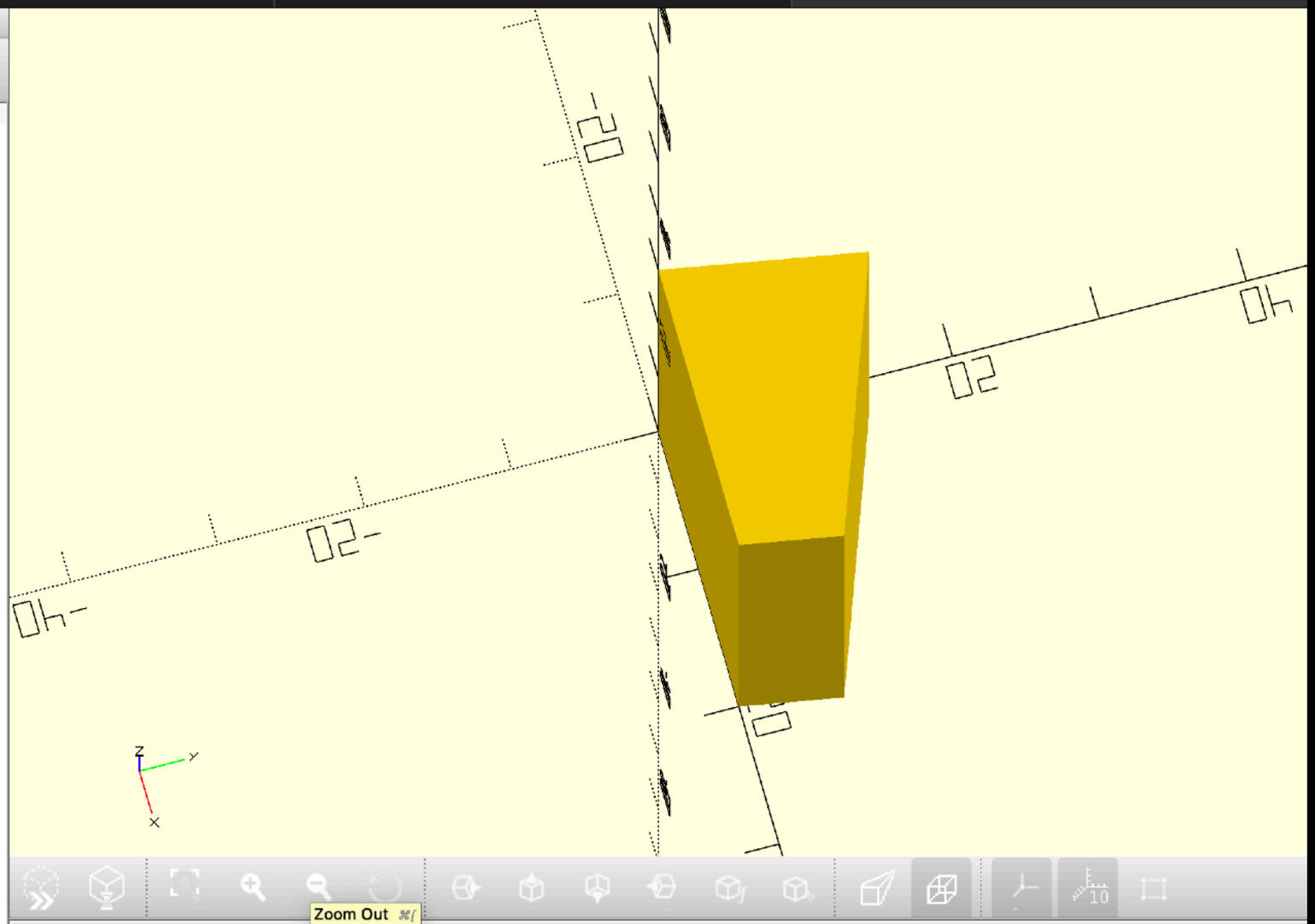
OpenSCAD 2019.05

Spicchio

bastione.scad | cappello.scad | supporto-sinistro.scad | spicchio.scad

Editor

```
1  s=10;
2  r1 = 2;
3  r2 = 4;
4  d = 3;
5  a = 3.14/9.;
6  ca=0.939693;
7  sa=0.34202;
8  b1 = [0, 0, 0]*s;
9  b2 = [2, 0, 0]*s;
10 b3 = [4 - r1*ca, r1*sa, 0]*s;
11 b4 = [4 - r2*ca, r2*sa, 0]*s;
12 a1 = [0, 0, d]*s;
13 a2 = [2, 0, d]*s;
14 a3 = [4 - r1*ca, r1*sa, d]*s;
15 a4 = [4 - r2*ca, r2*sa, d]*s;
16 polyhedron(points=[b1, b2, b3, b4, a1, a2, a3,
17     a4], faces=[[0, 1, 2, 3],
18      [4,5,1,0],  // front
19    [7,6,5,4],  // top
20    [5,6,2,1],  // right
21    [6,7,3,2],  // back
22    [7,4,0,3]]); // left
```



Console

```
Compiling design (CSG Tree generation)...
Compiling design (CSG Products generation)...
Geometries in cache: 4
Geometry cache size in bytes: 7520
CGAL Polyhedrons in cache: 0
CGAL cache size in bytes: 0
Compiling design (CSG Products normalization)...
Normalized CSG tree has 1 elements
Compile and preview finished.
Total rendering time: 0 hours, 0 minutes, 0 seconds
```

Viewport: translate = [0.00 0.00 0.00], rotate = [20.70 0.00 74.70], distance = 140.00 (905x592)

OpenSCAD 2019.05

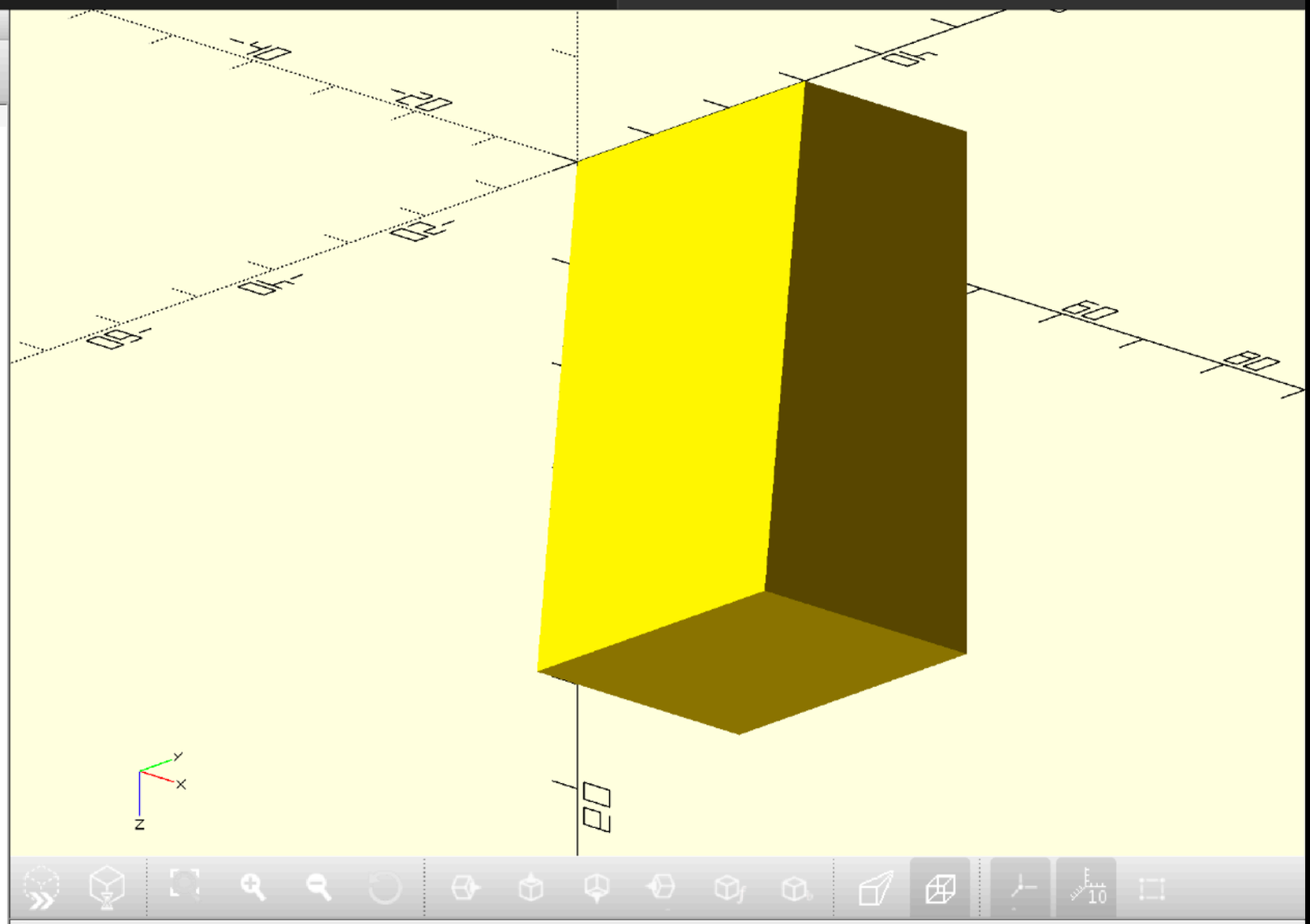
Supporto

bastione.scad | cappello.scad | supporto-sinistro.scad

Editor

STL

```
1  s=10;
2  h = 10/2;
3  b1 = [0, 0, 0]*s;
4  b2 = [2, 0, 0]*s;
5  b3 = [2, 3, 0]*s;
6  b4 = [0, 3, 0]*s;
7  a1 = [-.5, 0, h]*s;
8  a2 = [2, 0, h]*s;
9  a3 = [2, 3, h]*s;
10 a4 = [-.5, 3, h]*s;
11 polyhedron(points=[b1, b2, b3, b4, a1, a2, a3,
12     a4], faces=[[0, 1, 2, 3], [4,5,1,0],  // front
13    [7,6,5,4],  // top
14    [5,6,2,1],  // right
15    [6,7,3,2],  // back
16    [7,4,0,3]]); // left
```



Console

```
Compiling design (CSG Tree generation)...
Compiling design (CSG Products generation)...
Geometries in cache: 3
Geometry cache size in bytes: 6504
CGAL Polyhedrons in cache: 0
CGAL cache size in bytes: 0
Compiling design (CSG Products normalization)...
Normalized CSG tree has 1 elements
Compile and preview finished.
Total rendering time: 0 hours, 0 minutes, 0 seconds
```

Viewport: translate = [13.60 -3.92 21.60], rotate = [289.50 0.00 43.20], distance = 192.04 (905x592)

OpenSCAD 2019.05

Pronti per la stampa 3D…