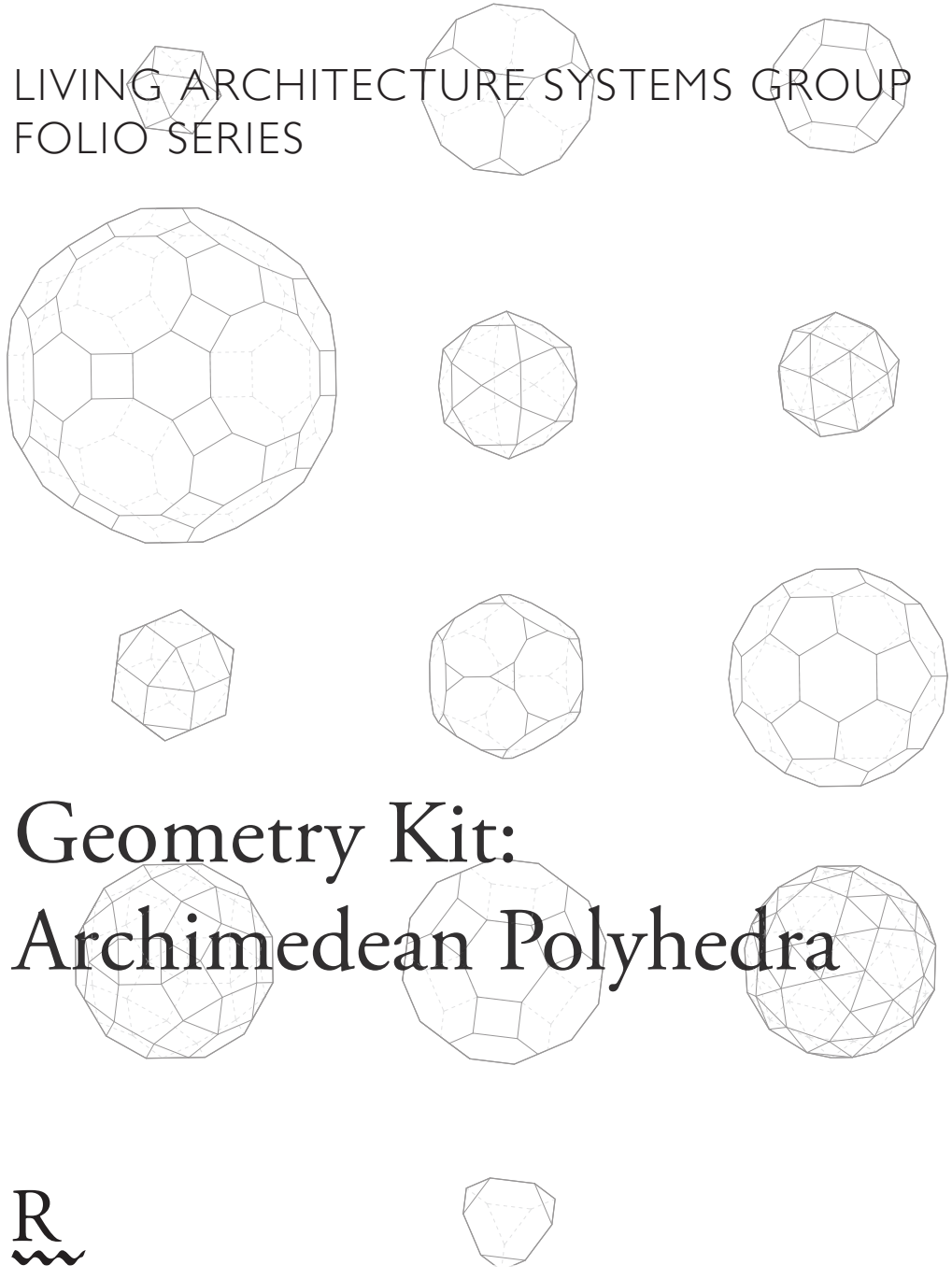
LIVING ARCHITECTURE SYSTEMS GROUP
FOLIO SERIES



Geometry Kit: Archimedean Polyhedra

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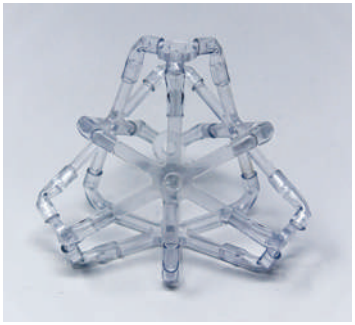
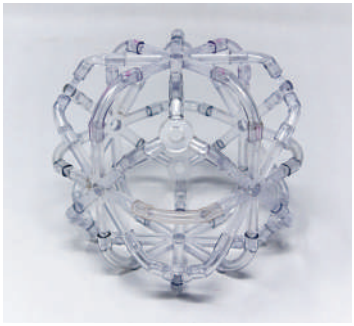
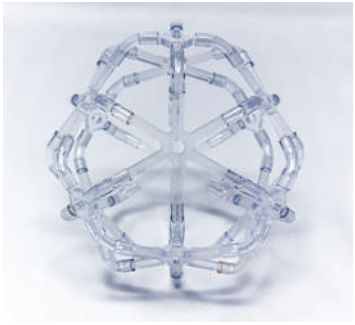
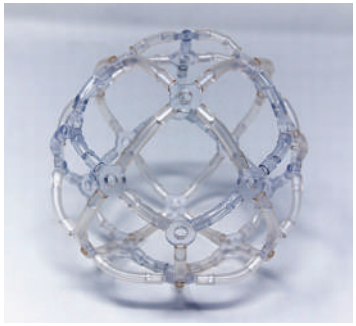
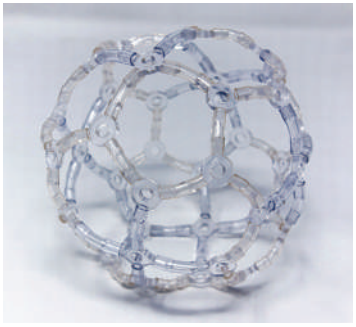
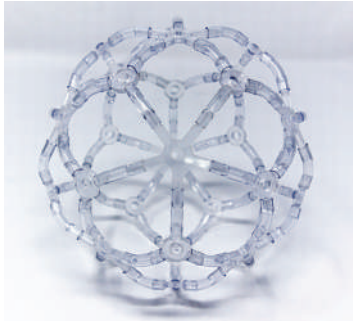
UNIVERSITY OF WATERLOO

Contents



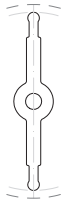




Introduction

Designed by and named after Greek mathematician Archimedes in the 3rd Century BCE, the Archimedean Solids are a group of thirteen semi-regular convex polyhedra whose faces are composed of regular polygons with symmetrically identical vertices.

The Geometry Kit recreates the Archimedean Solids through a combination of uniquely-designed polygon acrylic plates and tubing of varying sizes. The kit provides an opportunity to explore the forms and language of traditional geometry, and build arrays and combinations of polyhedral forms. It is intended to create familiarity with the terminology and basic form-language of polyhedra and related constructions. The Geometry Kit: Archimedean Polyhedra Folio is intended to accompany the physical kit as a lexicon of parts and complete polyhedra assemblies. The bar scale on each polyhedron cutsheet page can be matched to the laser-cuttable sheets provided in the Geometry Kit to guide assembly.

Lexicon Geometry



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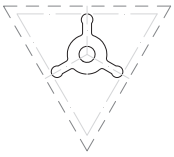
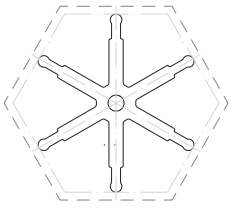


3-Way Unit

4-Way Unit

5-Way Unit



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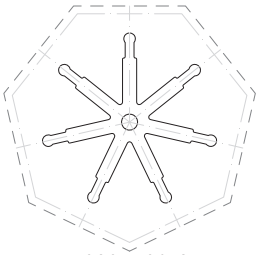

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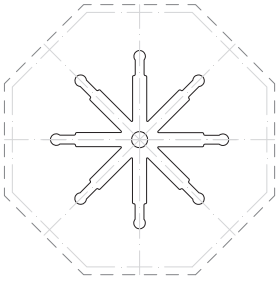
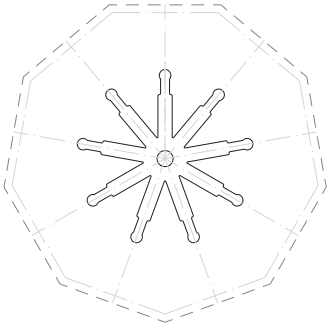


8-Way Unit



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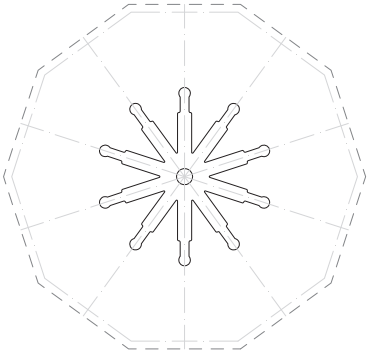
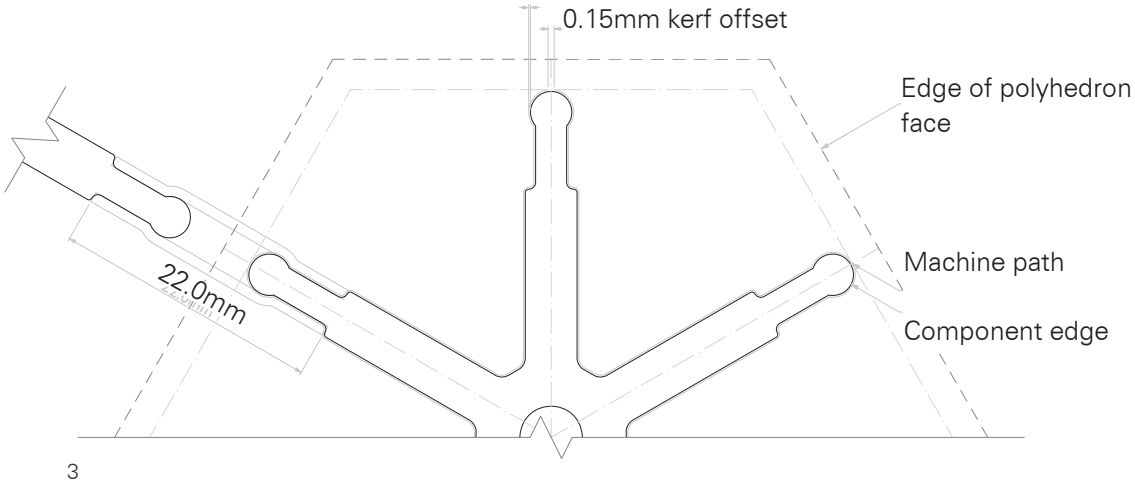


10-Way Unit



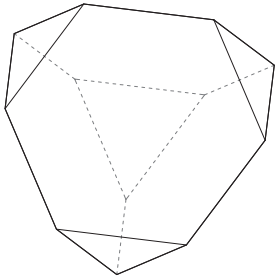
3

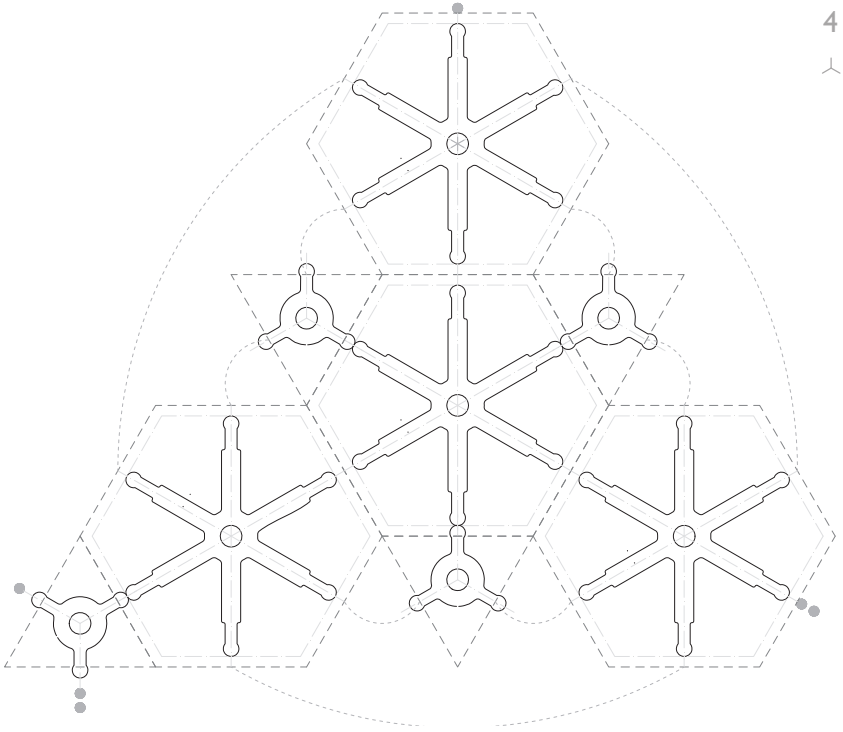
facing page

2 Individual geometry kit pieces, as they appear in unfolding patterns

3 Enlarged view of a single geometry kit piece showing joint and edge details

Truncated Tetrahedron

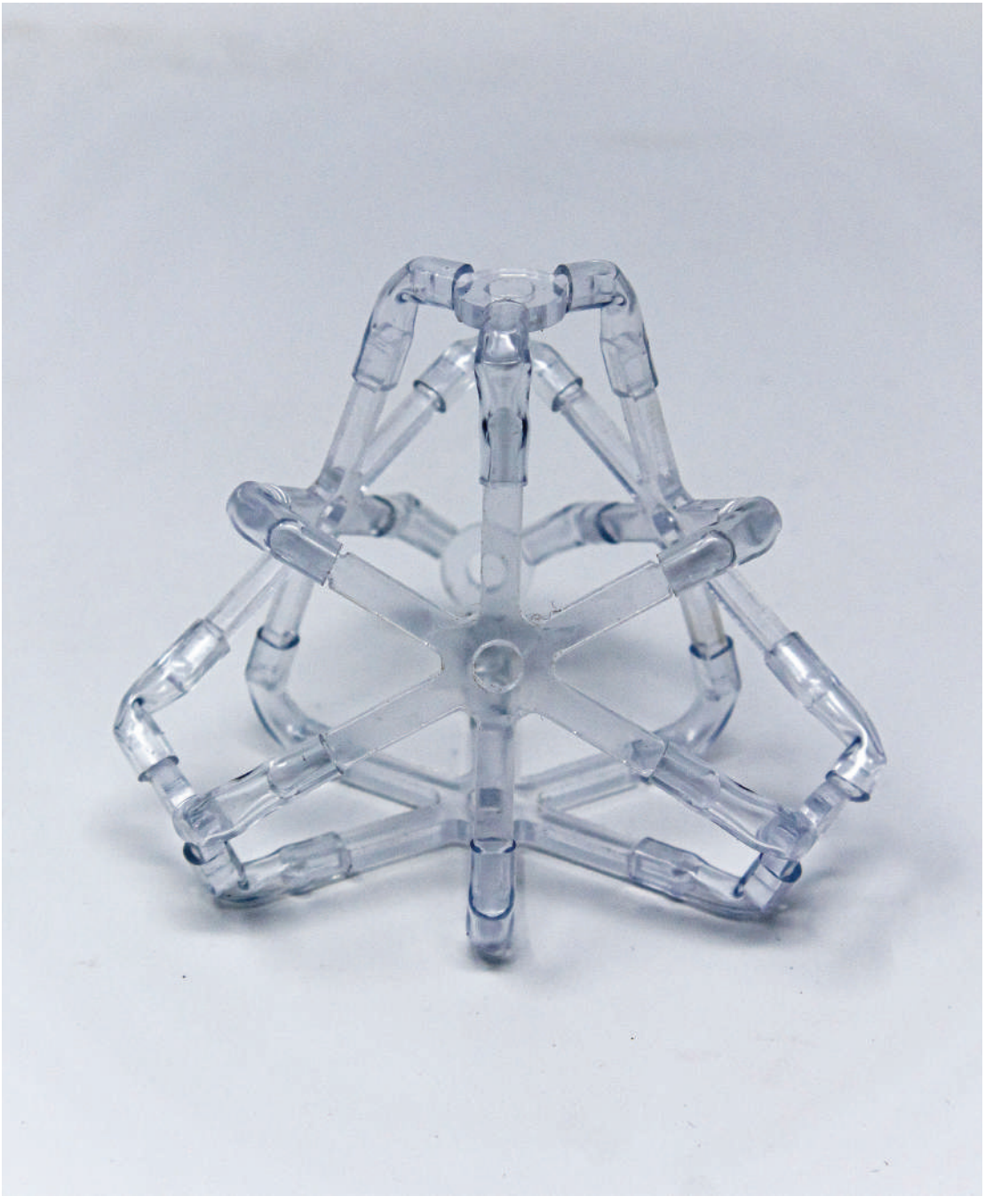


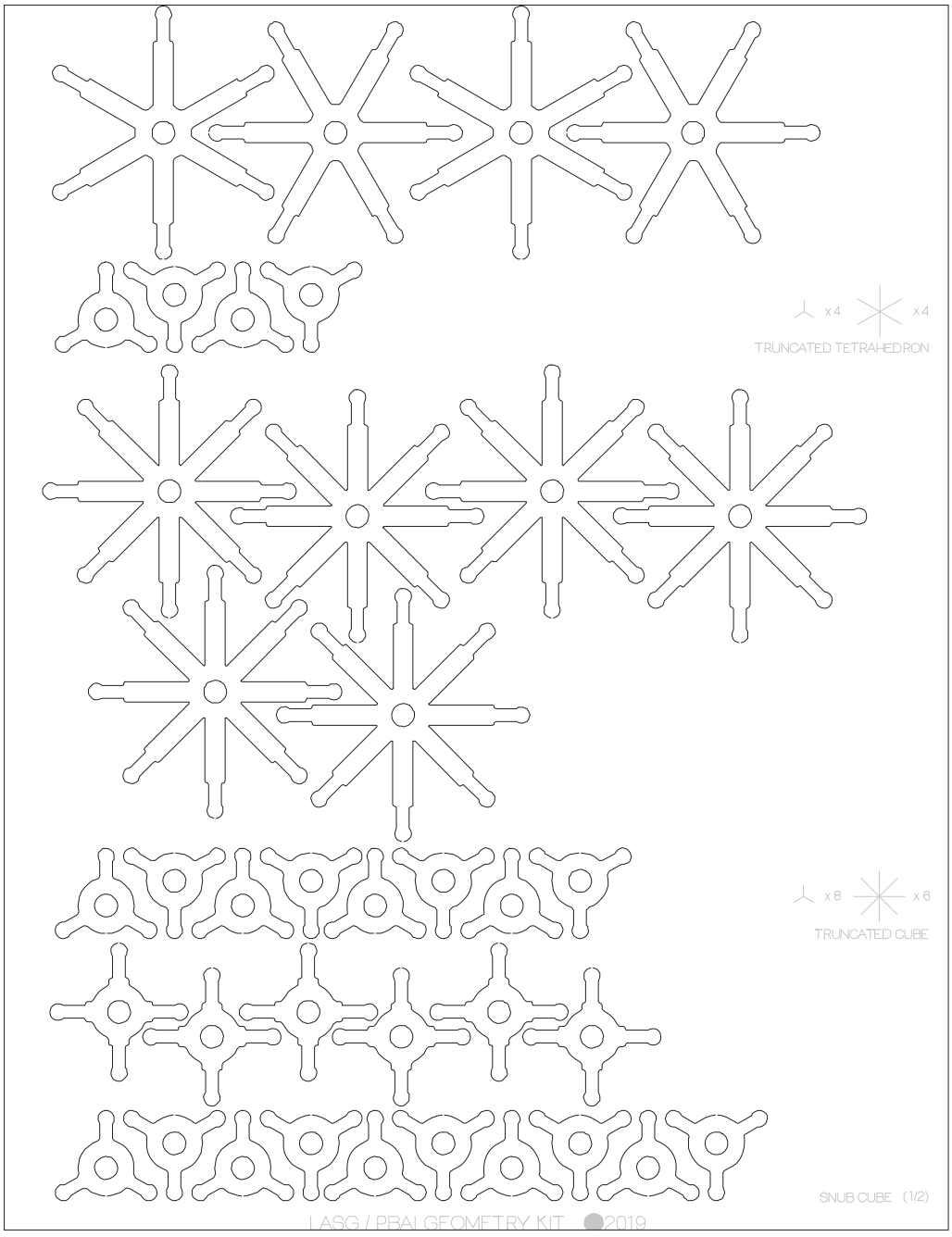


4

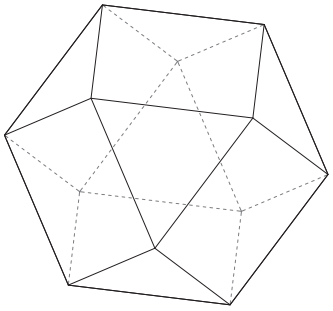
4

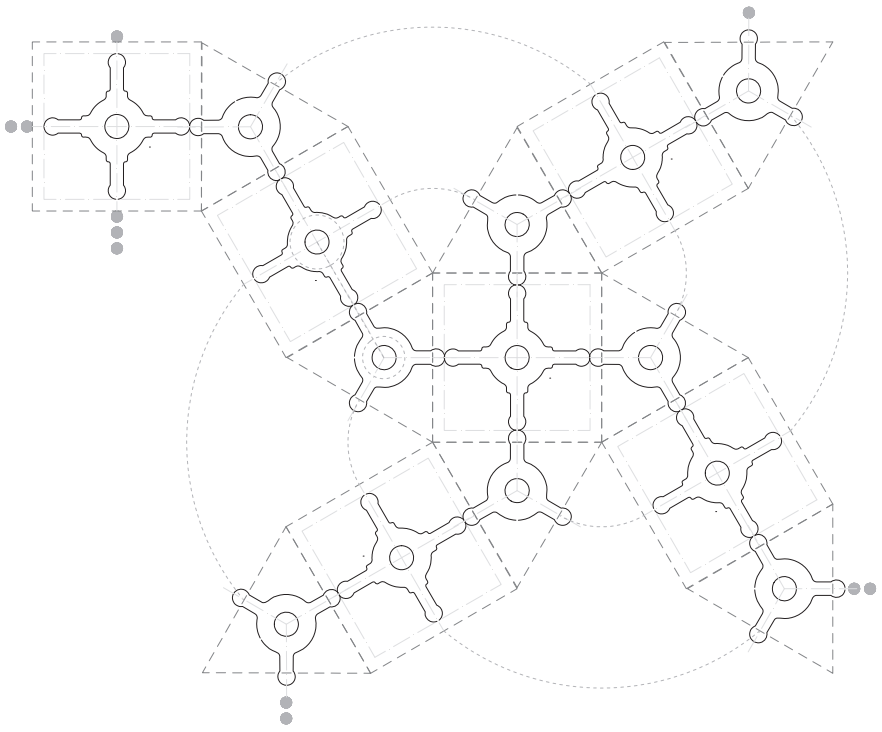
22mm
tubing




1cm
4cm
8cm
x4
x4
TRUNCATED TETRAHEDRON
x8
x6
TRUNCATED CUBE
SNUB CUBE (1/2)
LASG / PBAL GEOMETRY KIT ©2019

Cuboctahedron

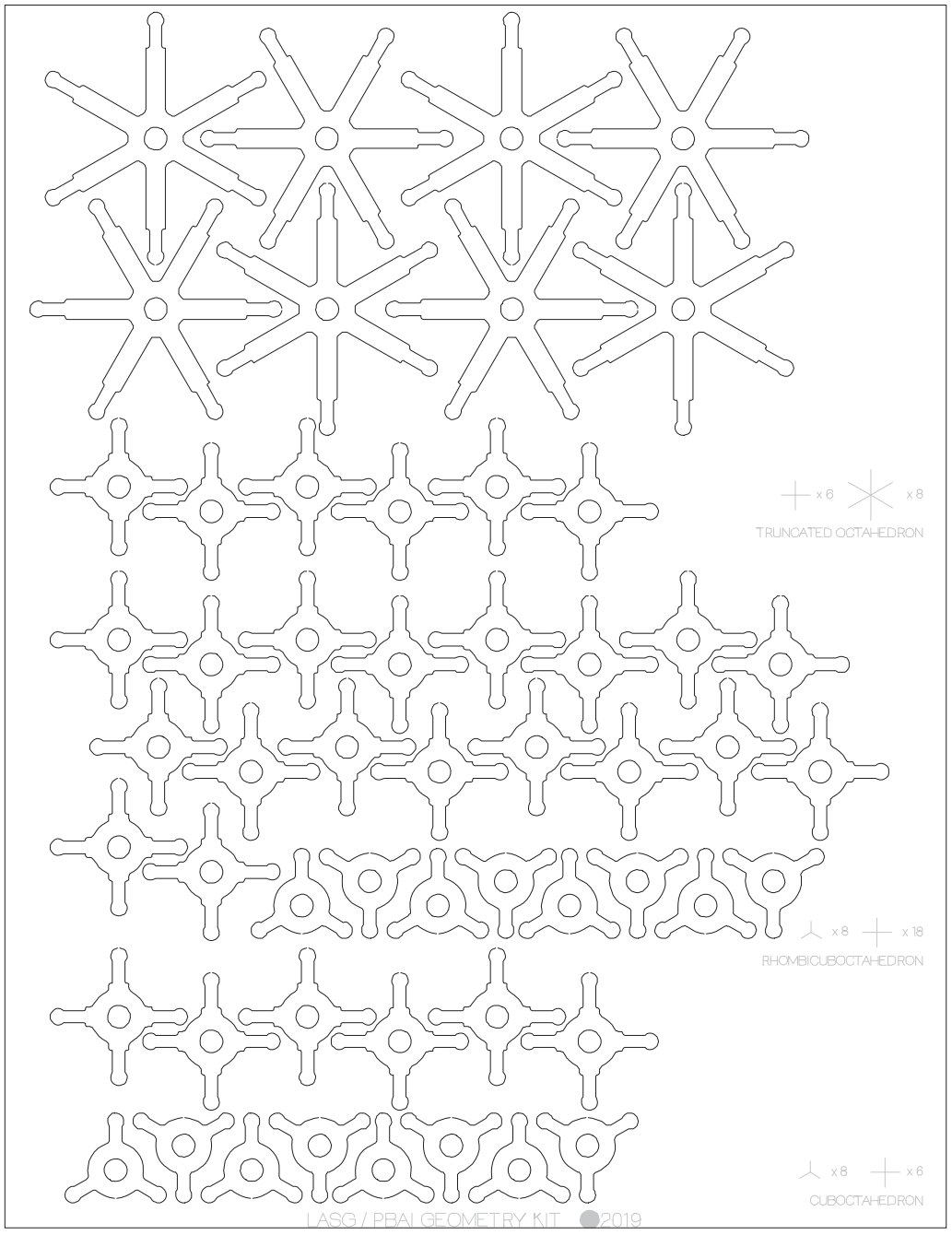




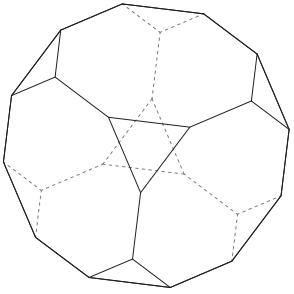
8

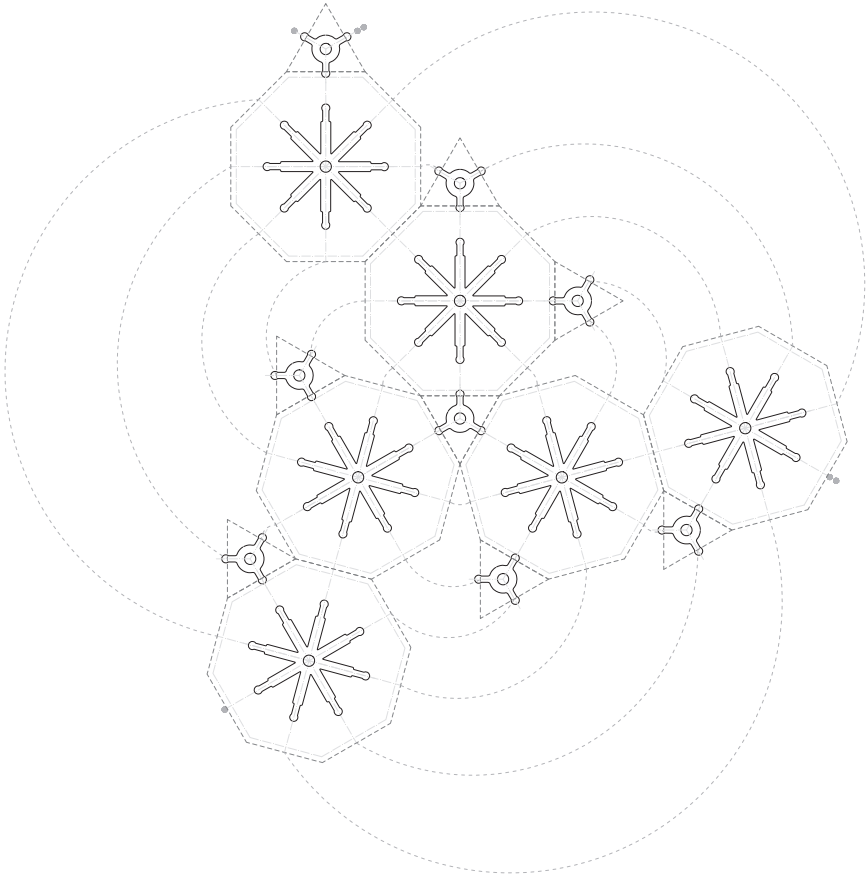
6

22mm
tubing


1cm
4cm
8cm
x 6
x 8
TRUNCATED OCTAHEDRON
x 8
x 18
RHOMBICUBOCTAHEDRON
x 8
x 6
CUBOCTAHEDRON
LASG / PBAI GEOMETRY KIT ©2019

Truncated Cube



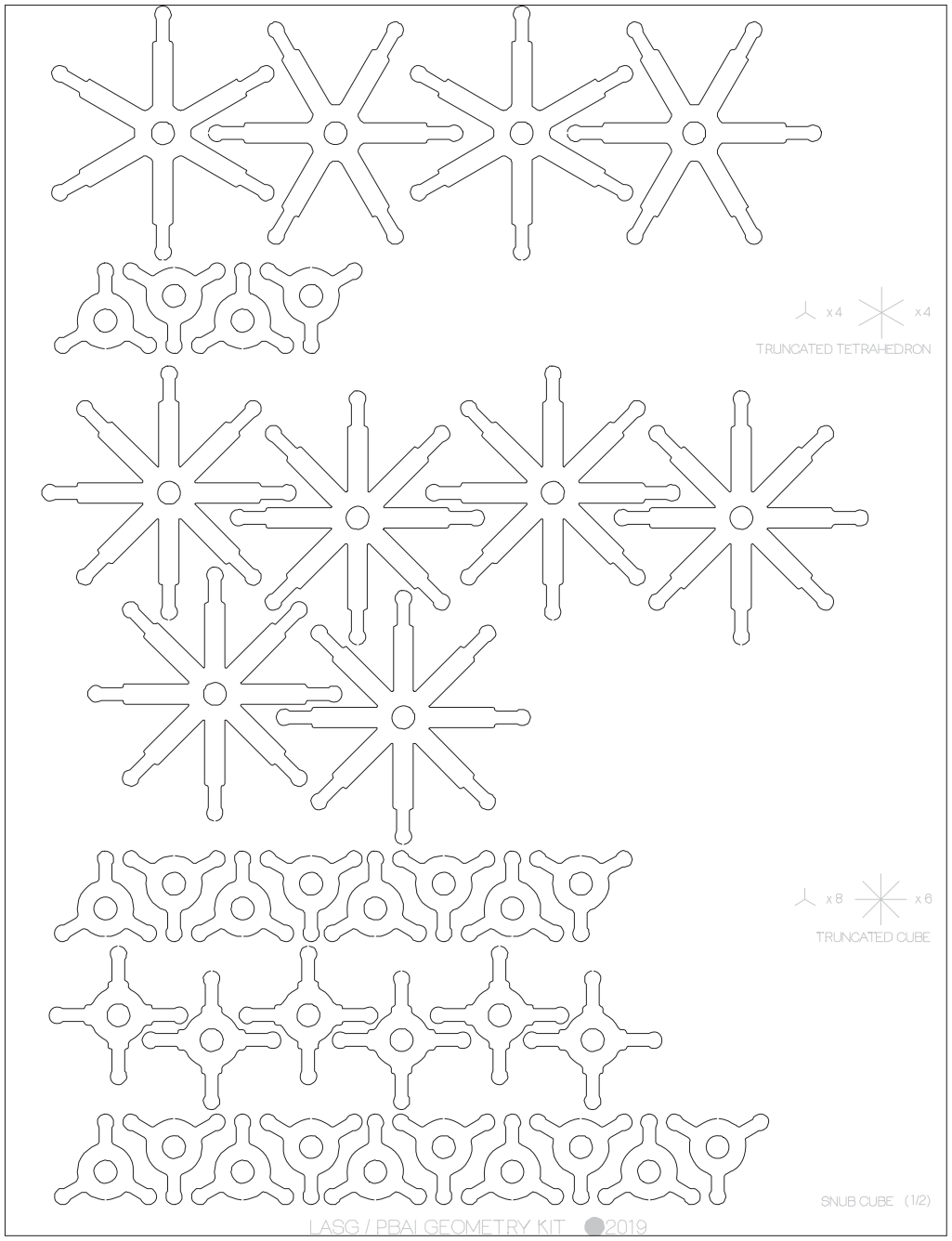


8

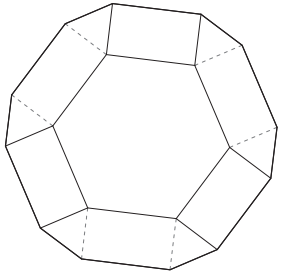
6

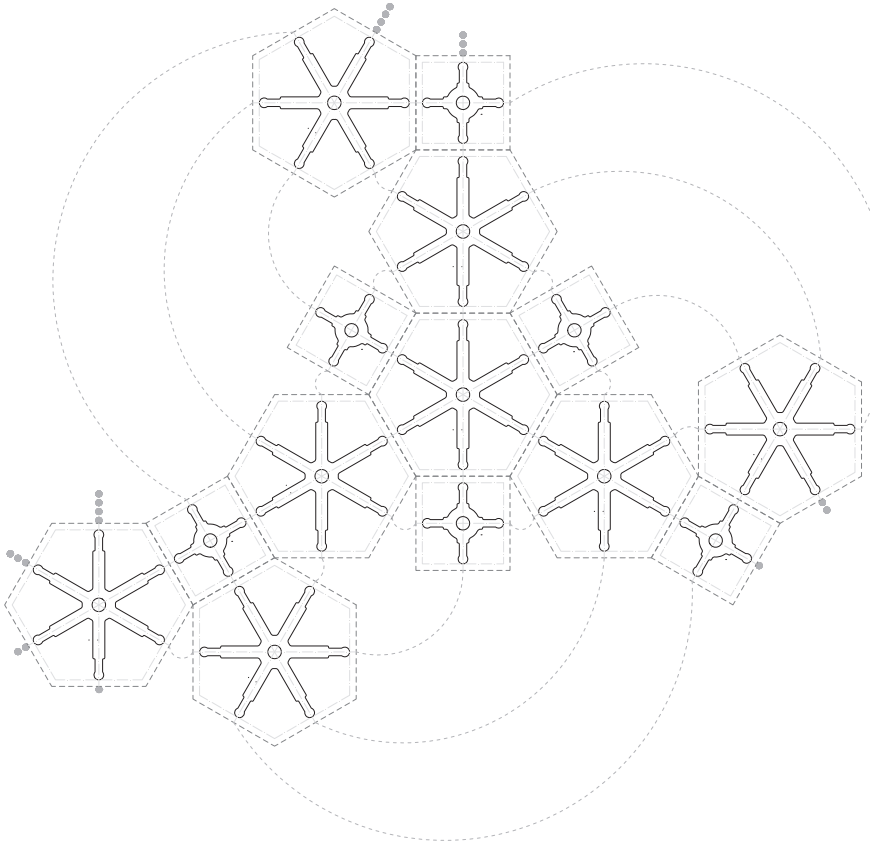
22mm tubing

44mm tubing


1cm
4cm
8cm
x4
x4
TRUNCATED TETRAHEDRON
x8
x6
TRUNCATED CUBE
SNUB CUBE (1/2)
LASG / PBAI GEOMETRY KIT ●2019

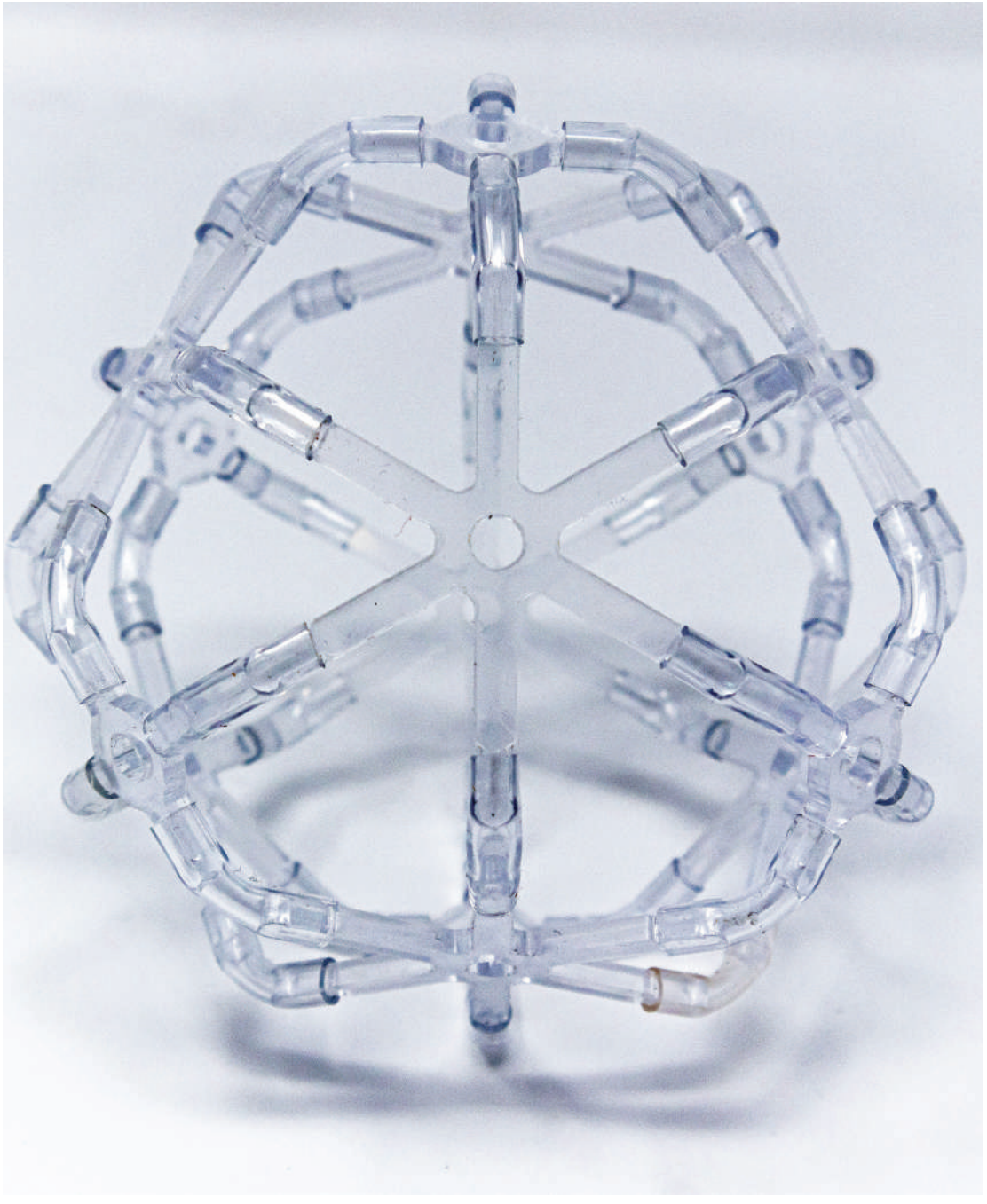
Truncated Octahedron

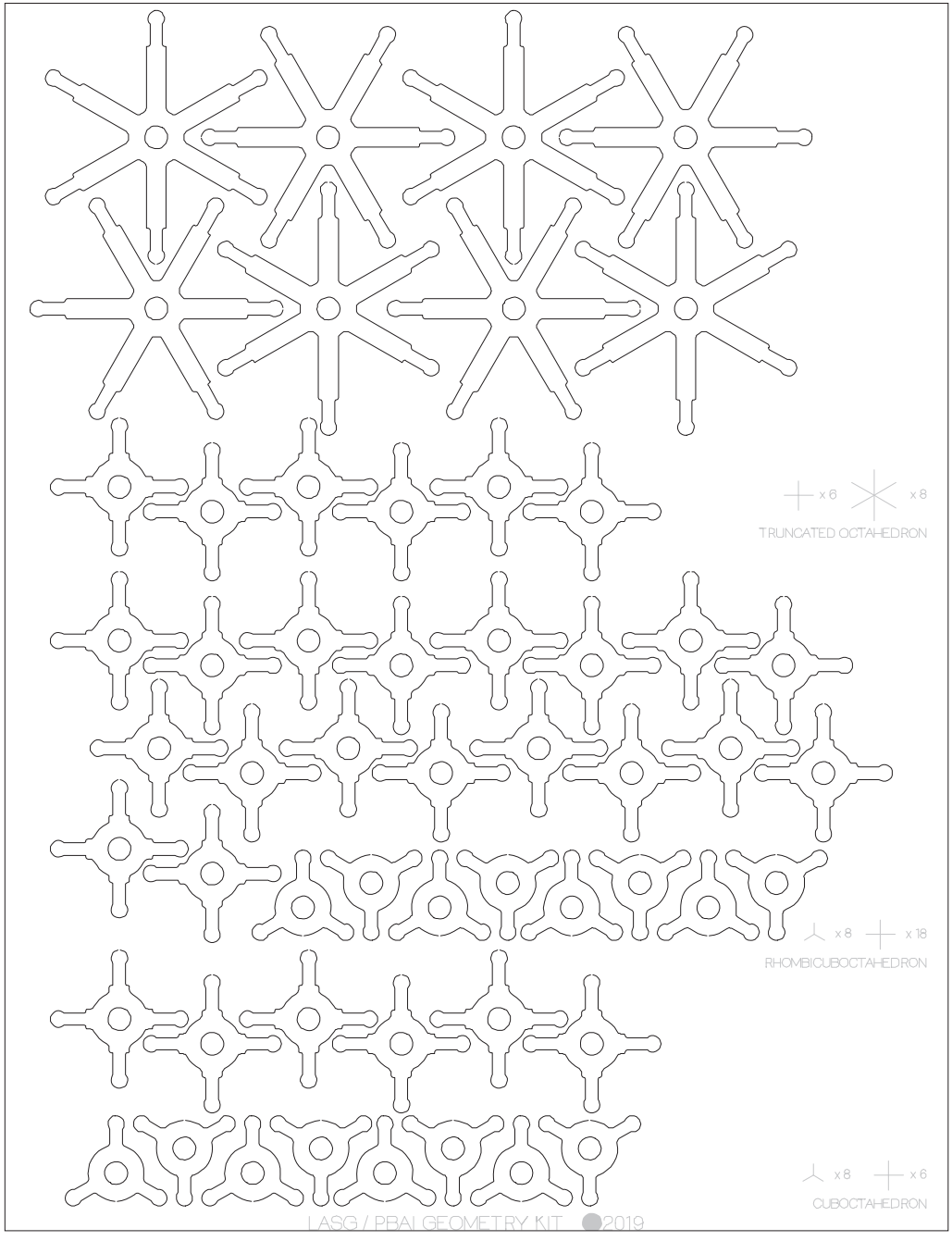




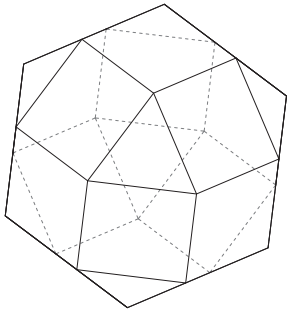
6
+
8

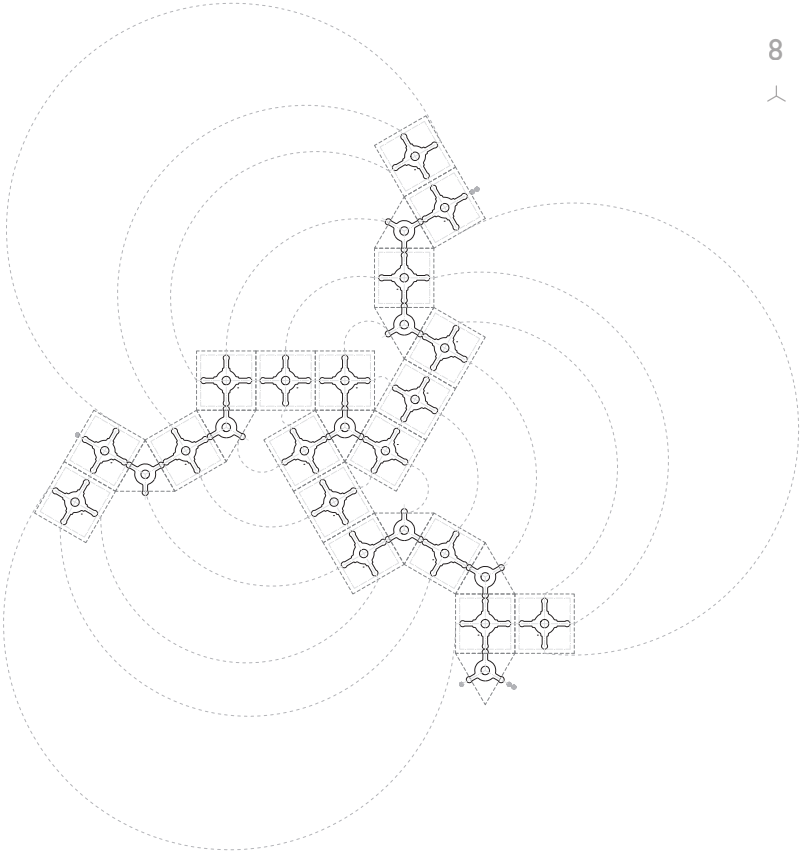
22mm
tubing




1cm
4cm
8cm
x6
x8
TRUNCATED OCTAHEDRON
x8
x18
RHOMBICUBOCTAHEDRON
x8
x6
CUBOCTAHEDRON
LASG / PBAI GEOMETRY KIT ©2019

Rhombicuboctahedron



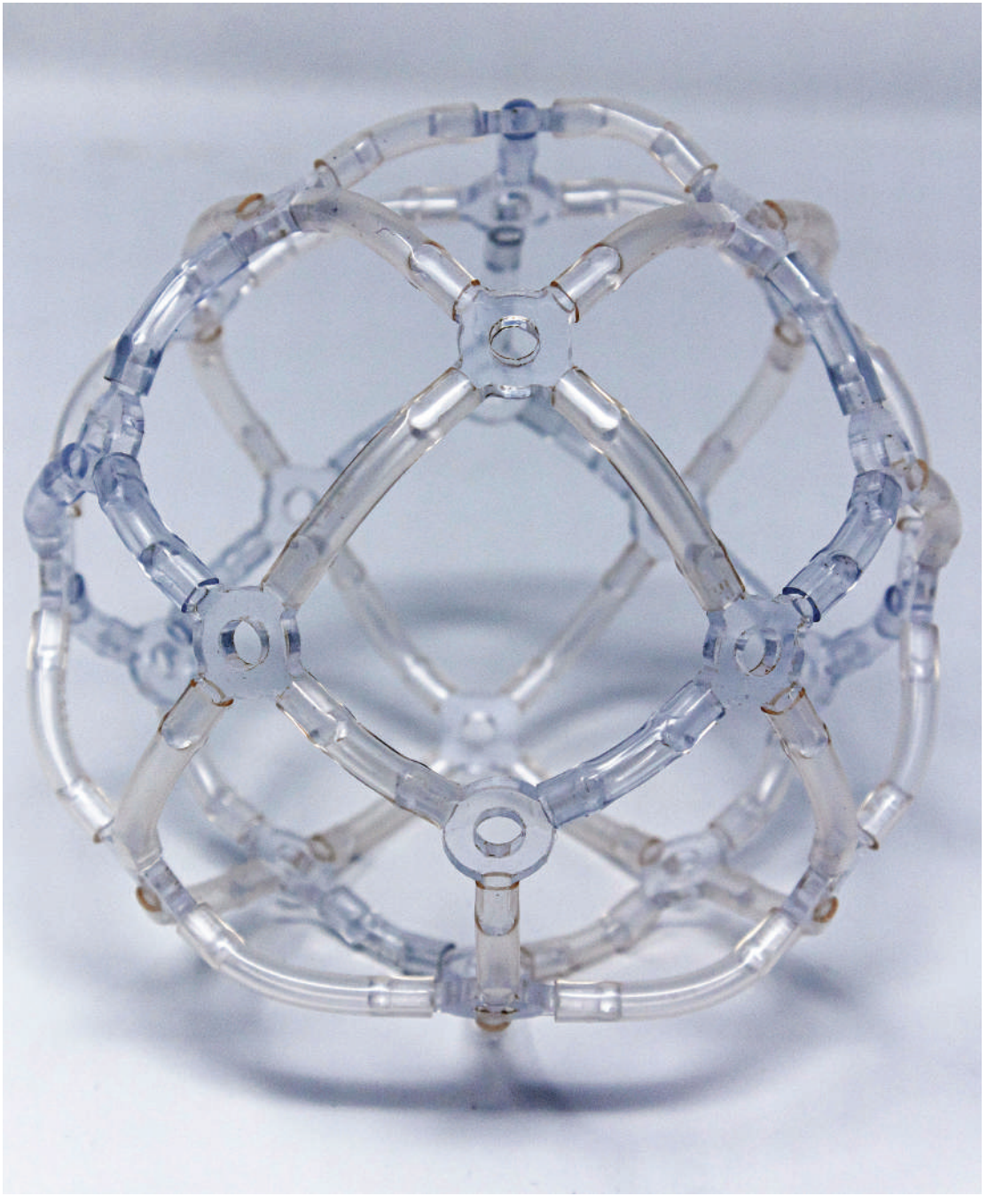


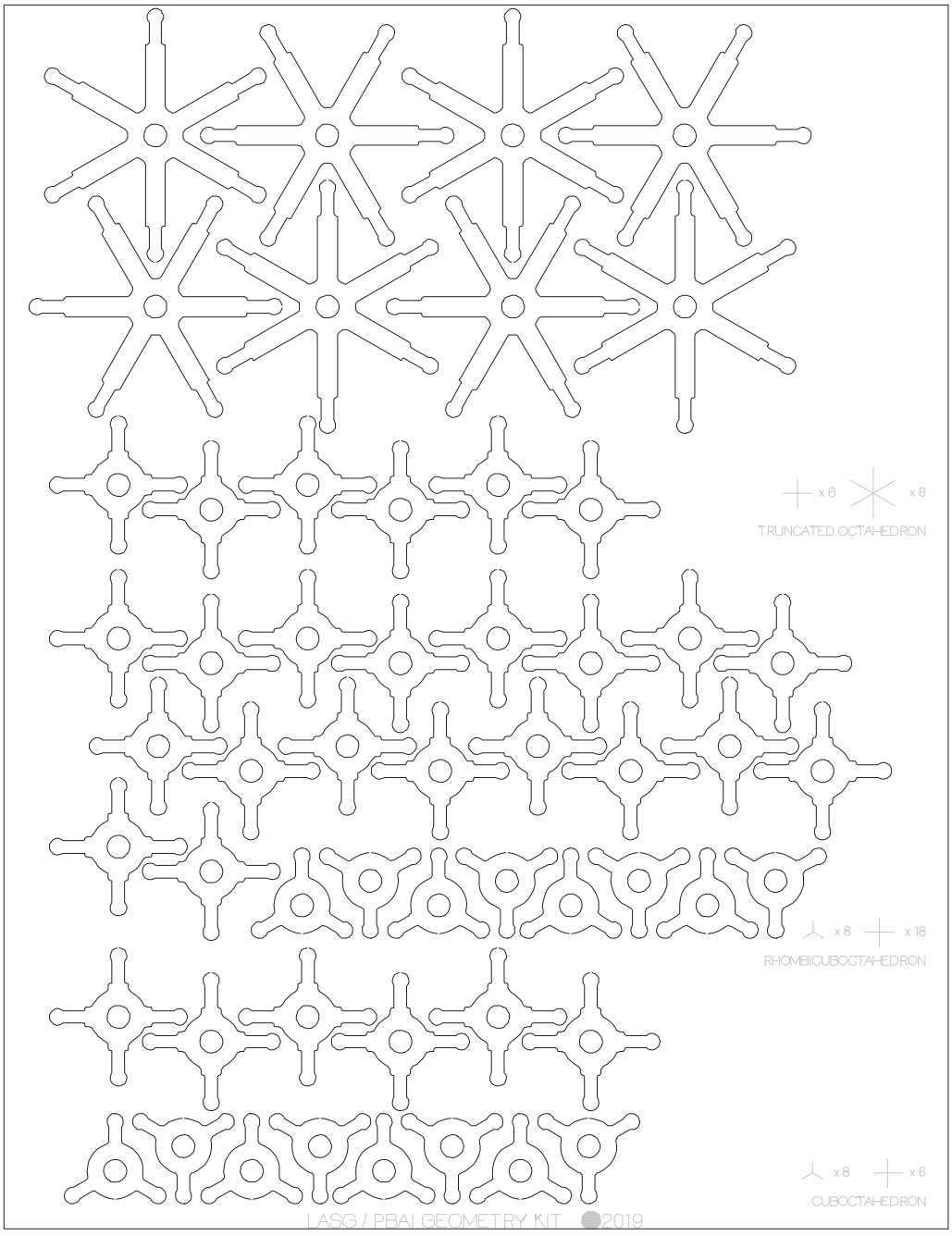
8

18

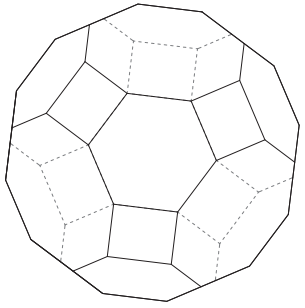
22mm tubing

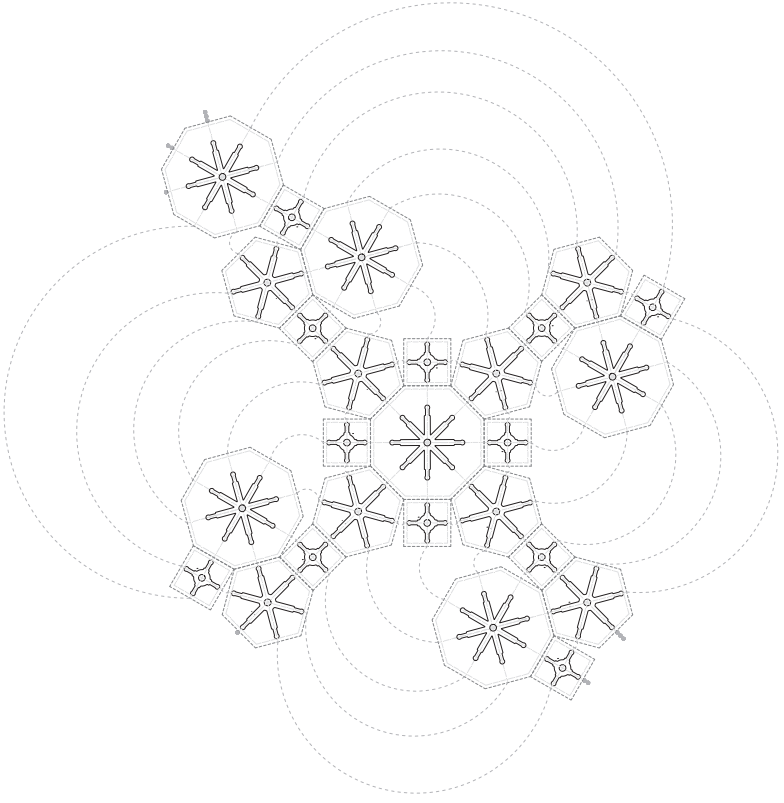
44mm tubing




1cm
4cm
8cm
x 6
x 8
TRUNCATED OCTAHEDRON
x 8
x 18
RHOMBICUBOCTAHEDRON
x 8
x 6
CUBOCTAHEDRON
LASG / PBAI GEOMETRY KIT ©2019

Truncated Cuboctahedron



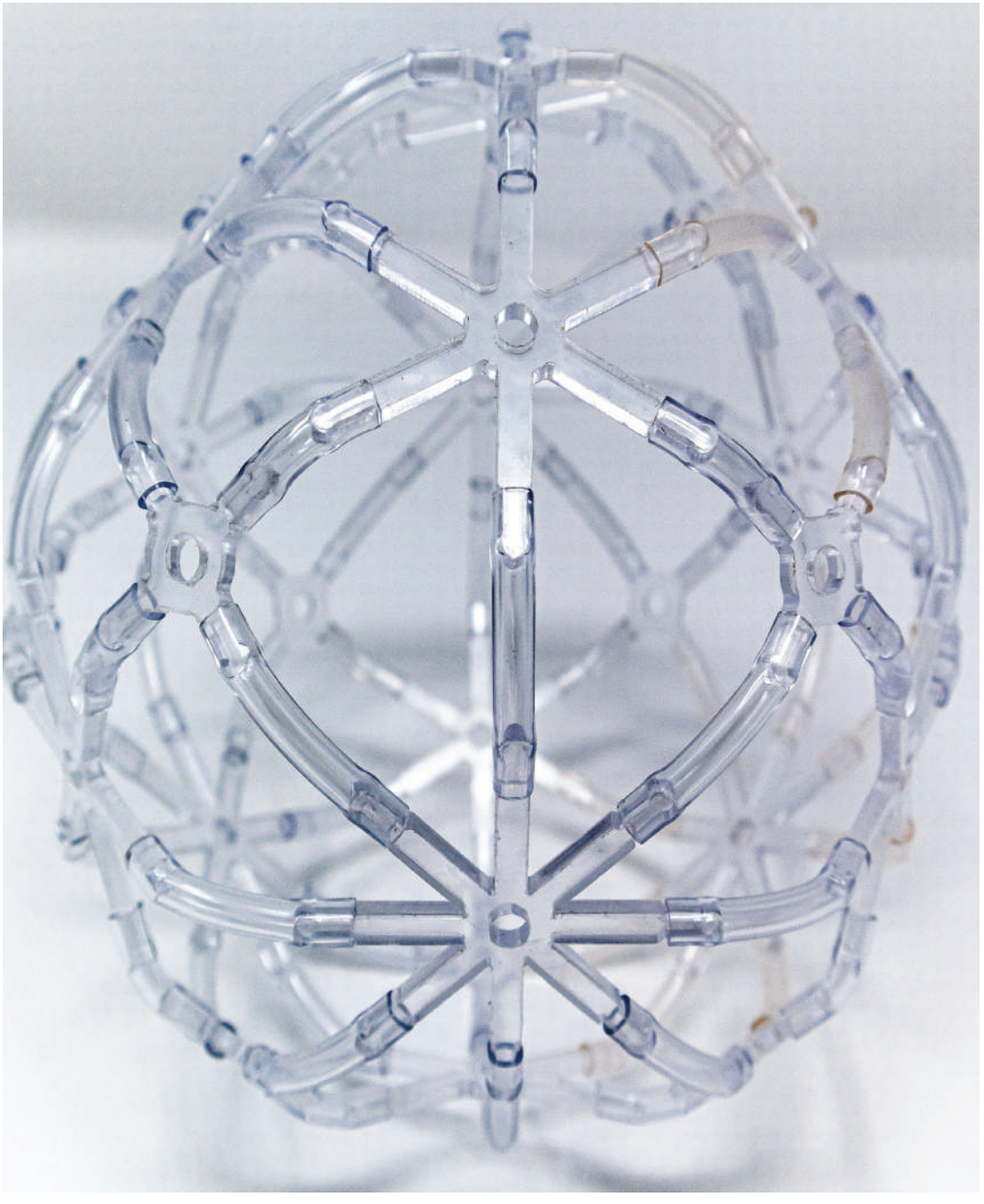


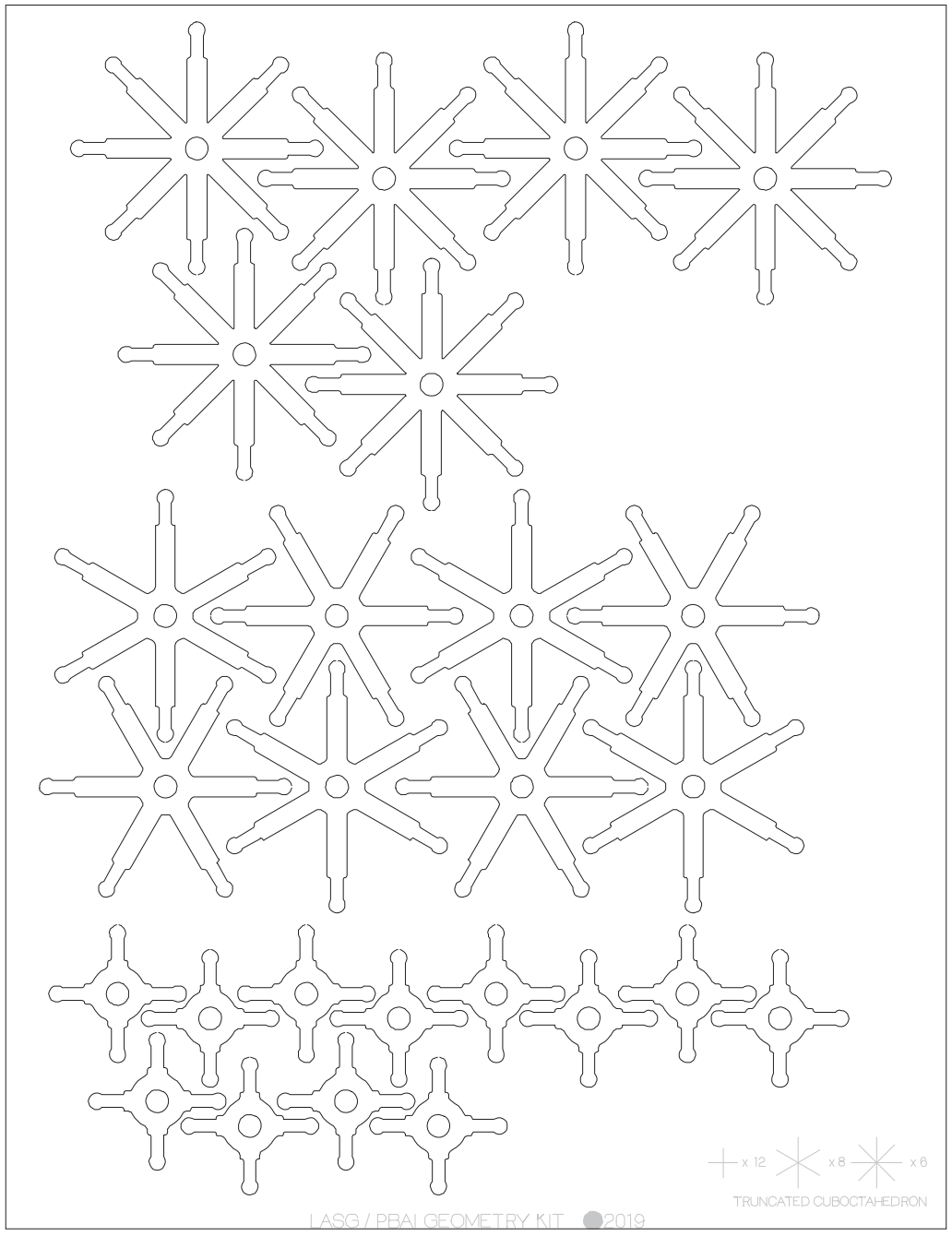
12 6

8

22mm tubing

44mm tubing

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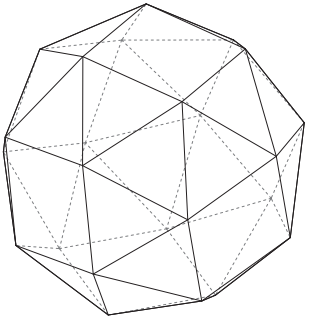
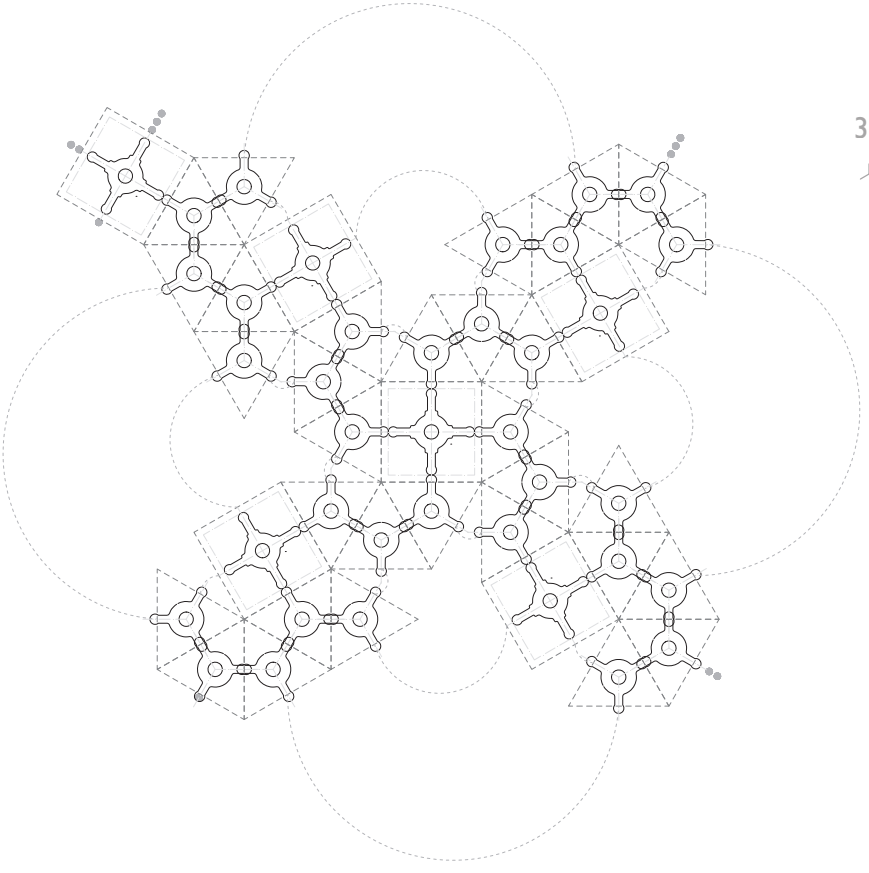
4cm
8cm
x 12
x 8
x 6
TRUNCATED CUBOCTAHEDRON
LASG / PBAI GEOMETRY KIT 2019

Snub Cube

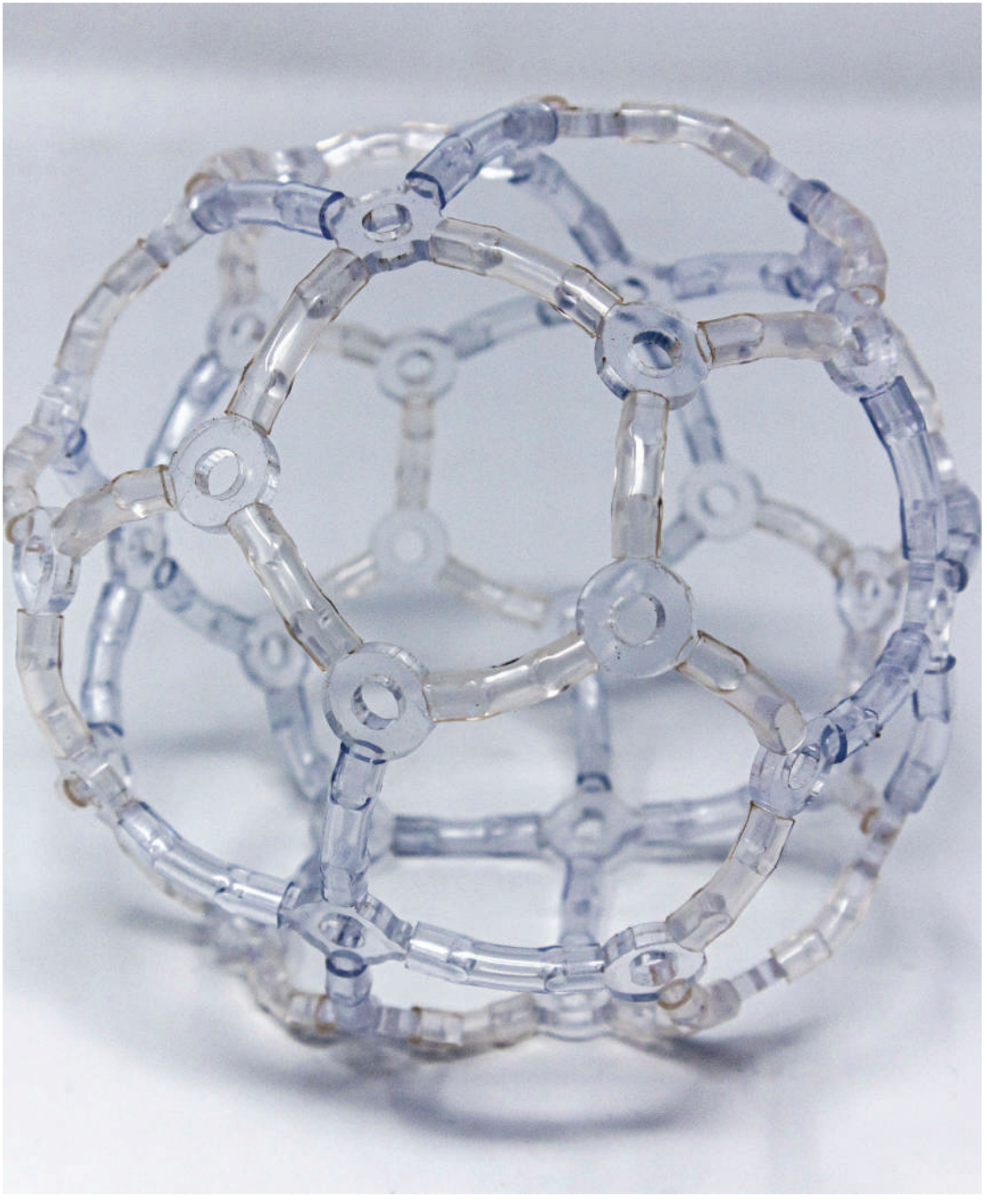


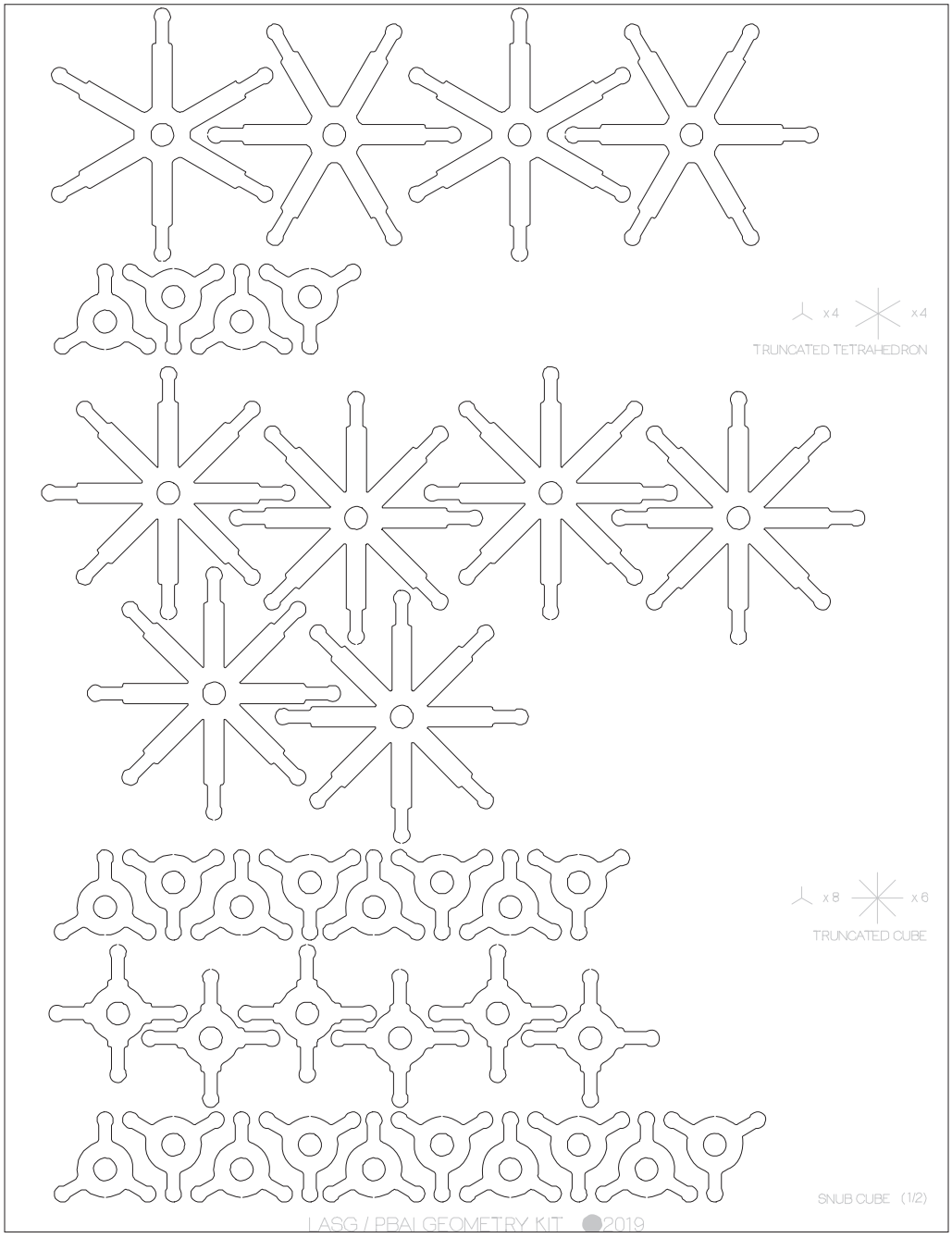


32

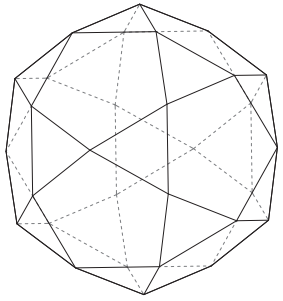
6

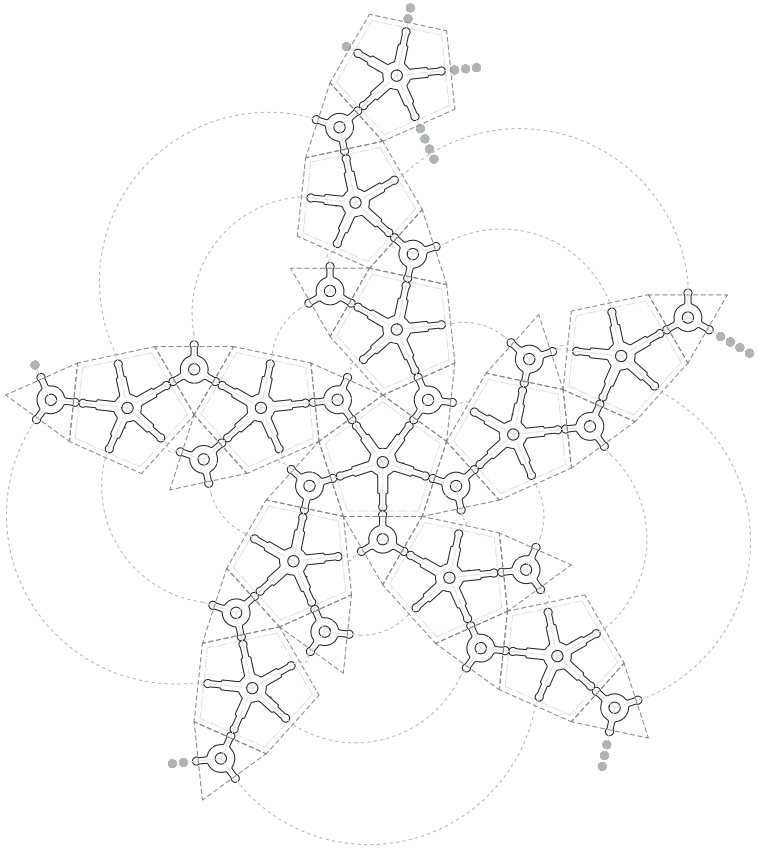
22mm
tubing




1cm
4cm
8cm
x4
x4
TRUNCATED TETRAHEDRON
x8
x6
TRUNCATED CUBE
SNUB CUBE (1/2)
LASG / PBAI GEOMETRY KIT ●2019

Icosidodecahedron

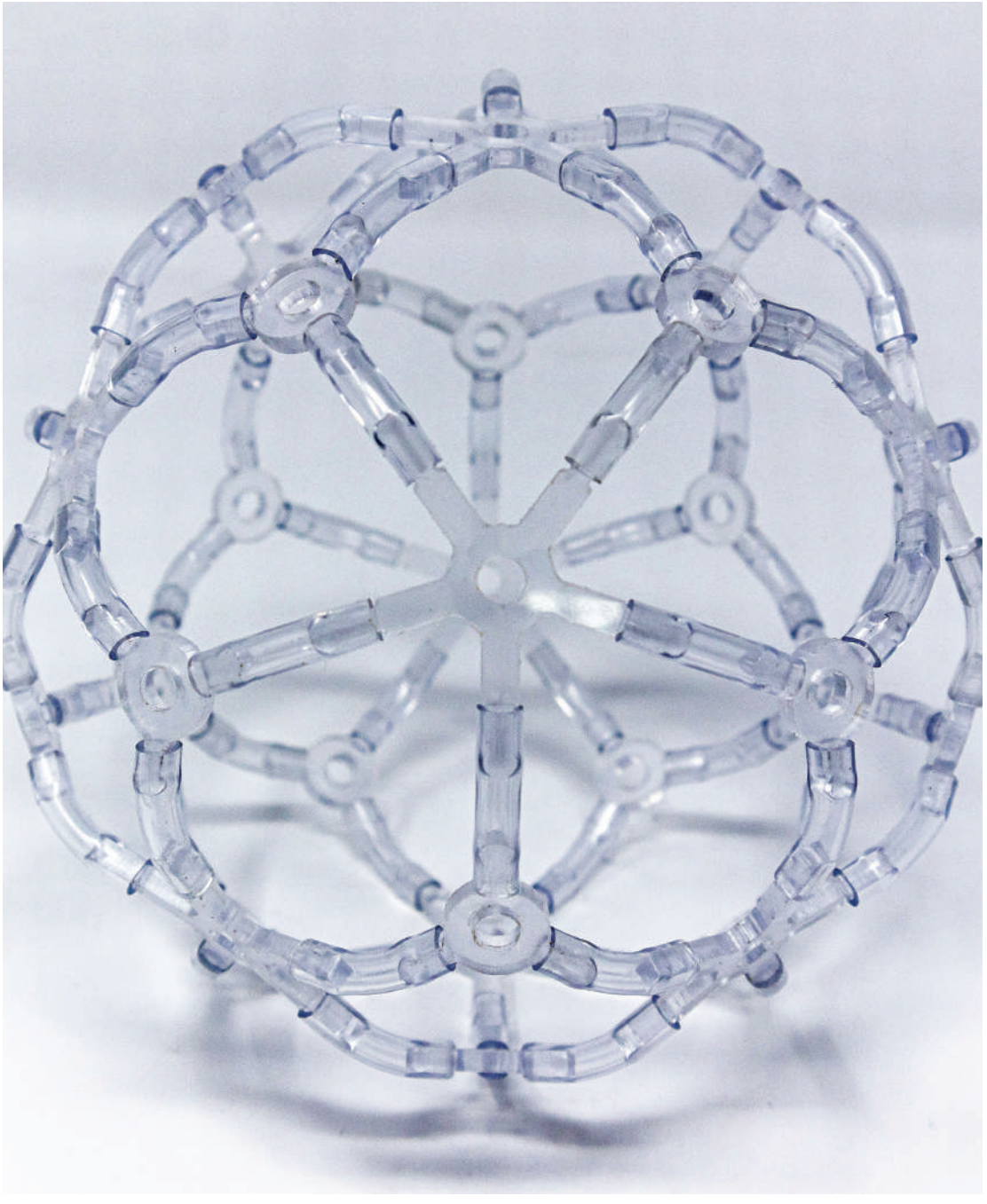


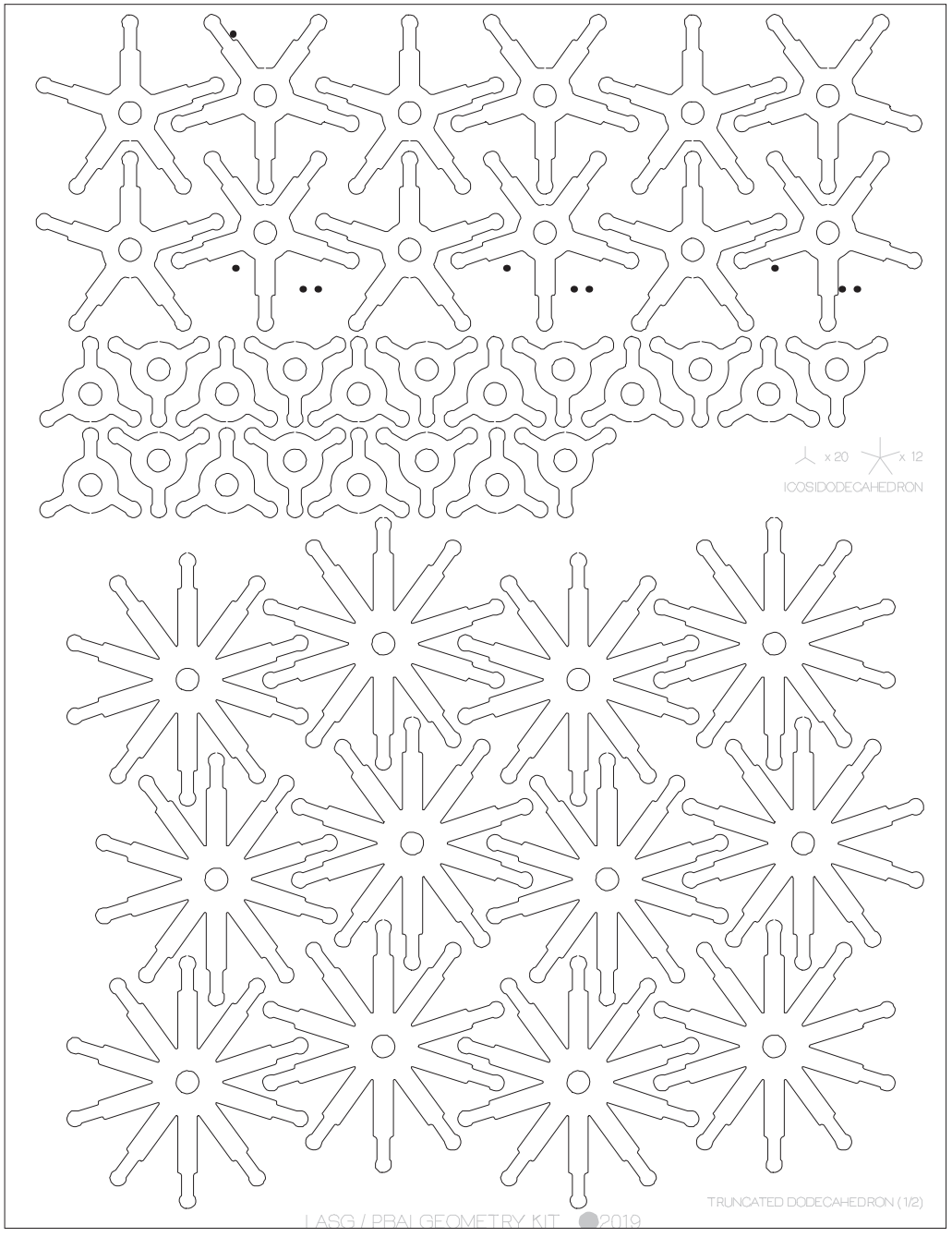


20

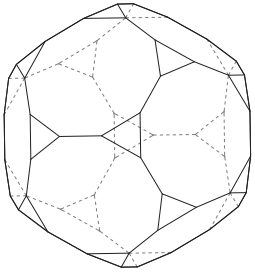
12

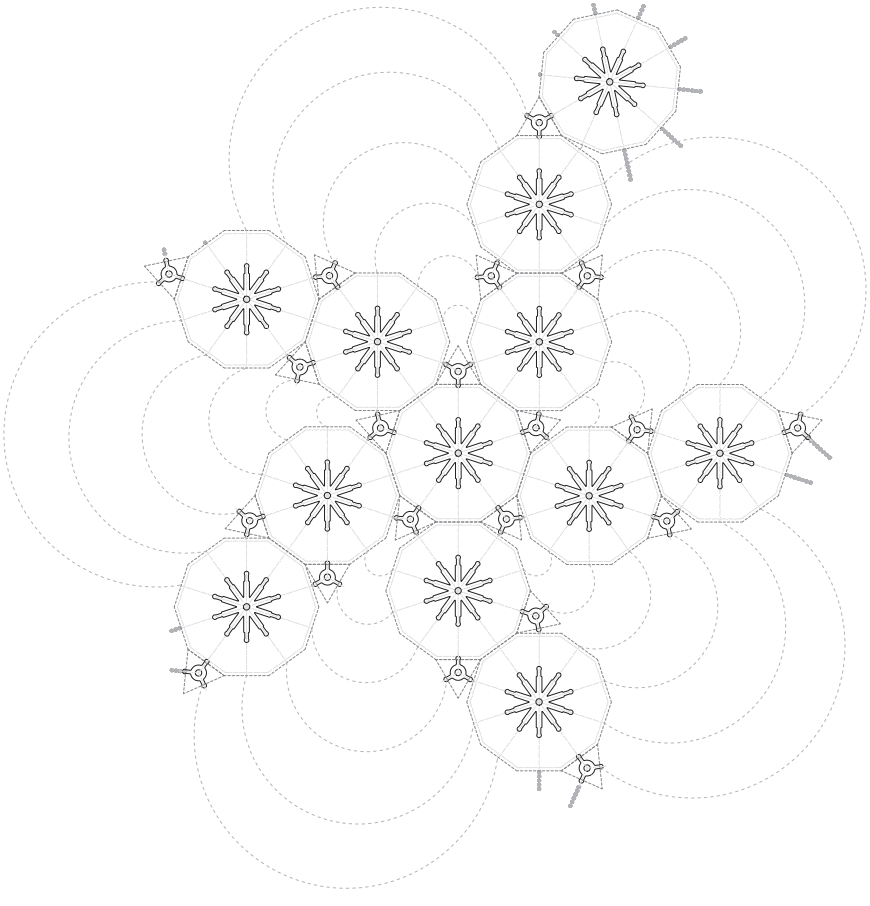
22mm
tubing




1cm
4cm
8cm
x 20
x 12
ICOSIDODECAHEDRON
TRUNCATED DODECAHEDRON (1/2)
LASG / PRAL GEOMETRY KIT ● 2019

Truncated Dodecahedron



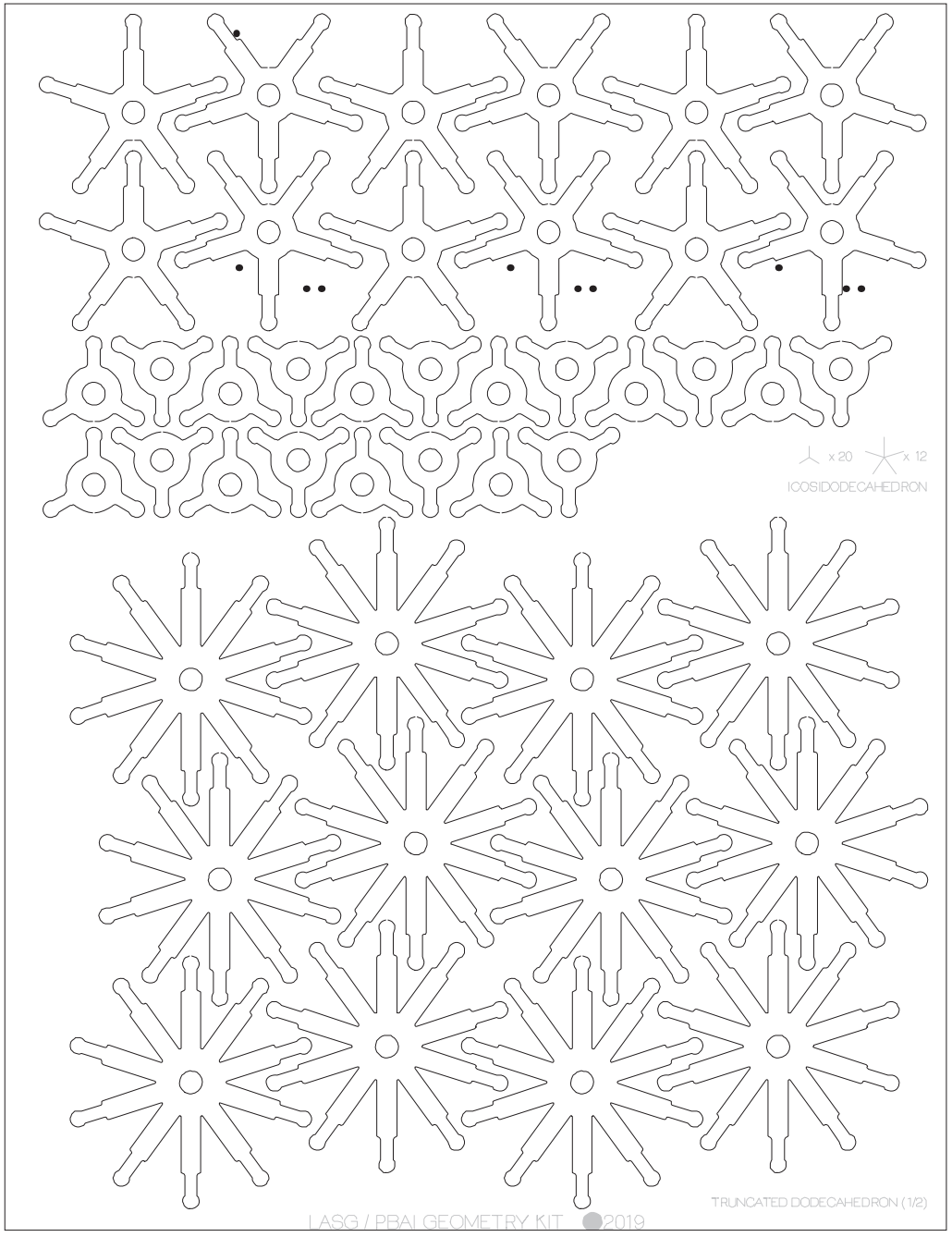


20

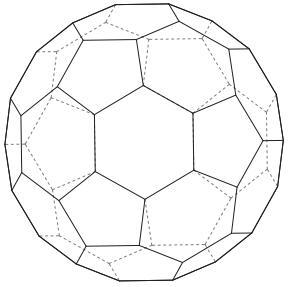
12

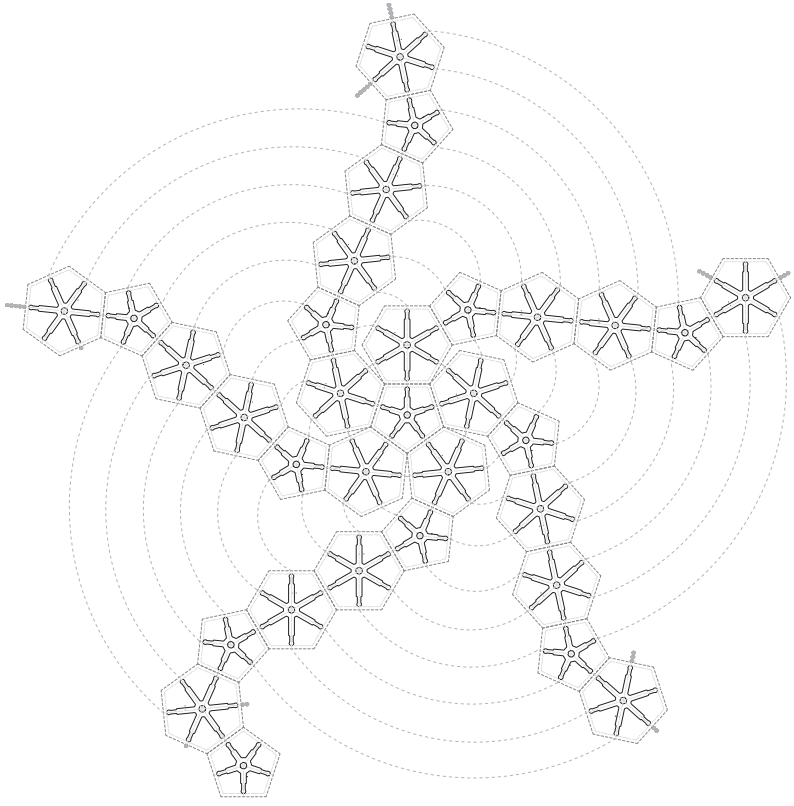
22mm tubing

44mm tubing


1cm
4cm
8cm
x 20
x 12
ICOSIDODECAHEDRON
TRUNCATED DODECAHEDRON (1/2)
LASG / PBAI GEOMETRY KIT ©2019

Truncated Icosahedron

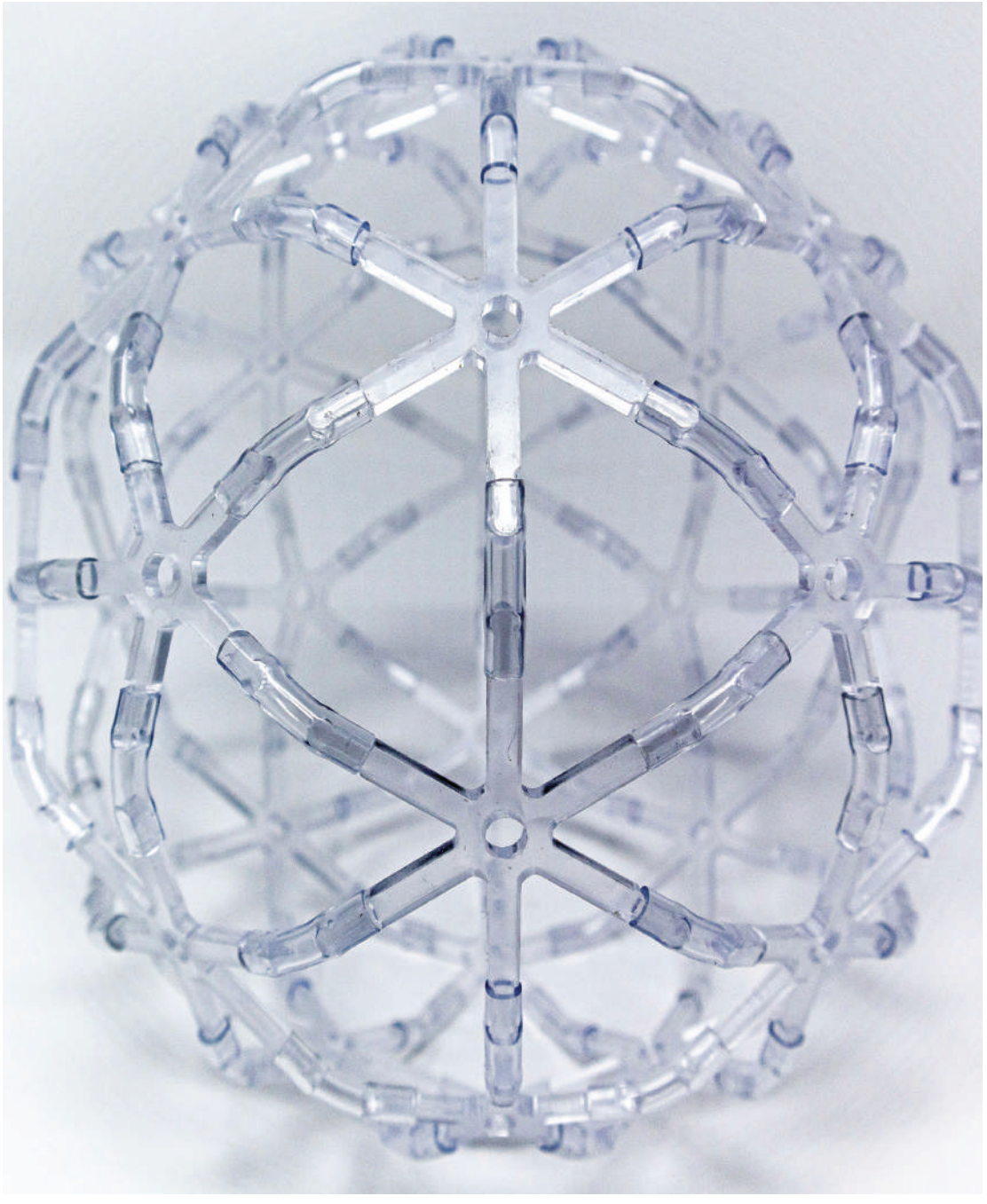


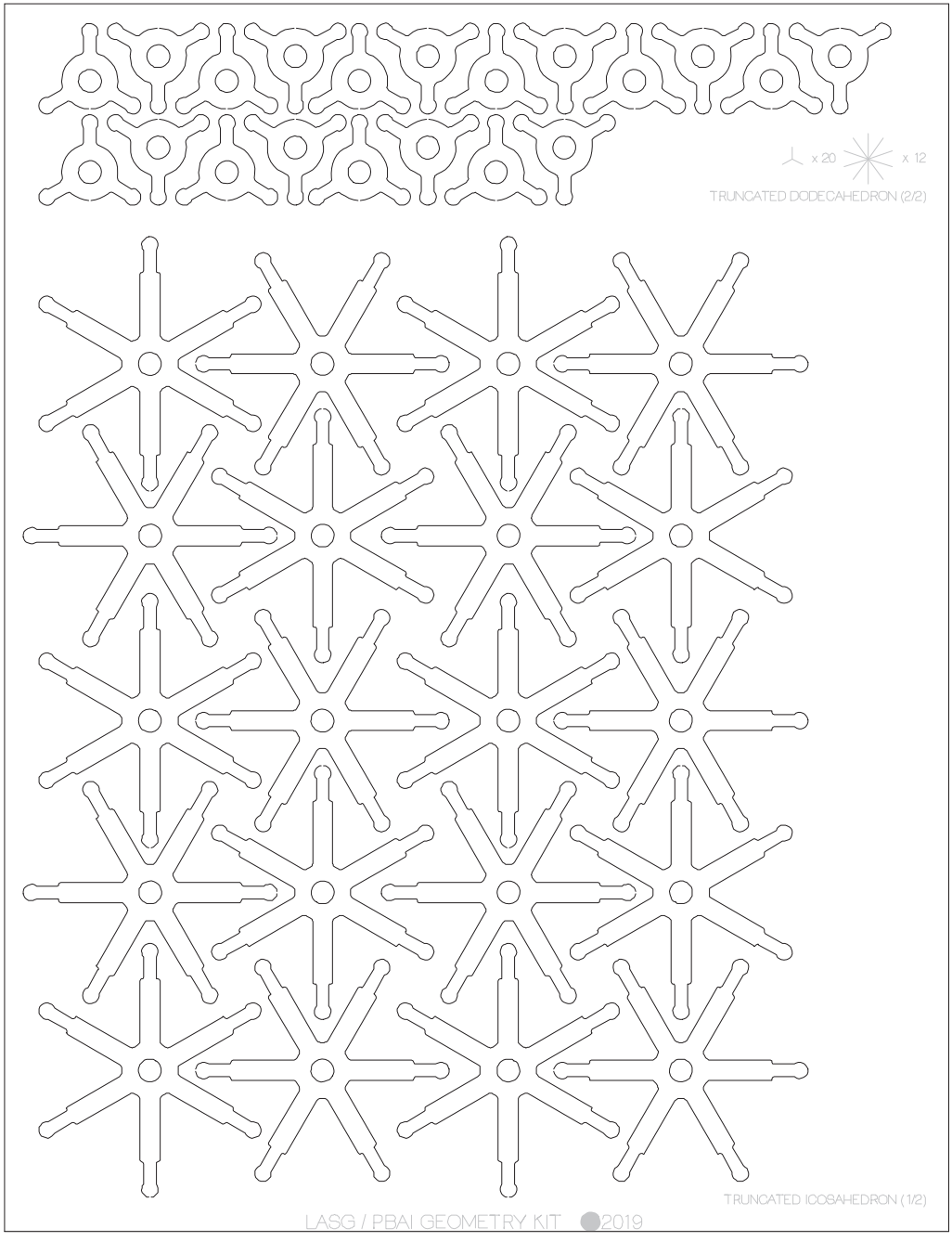


12

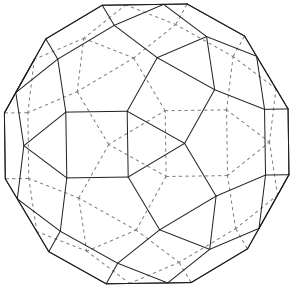
20

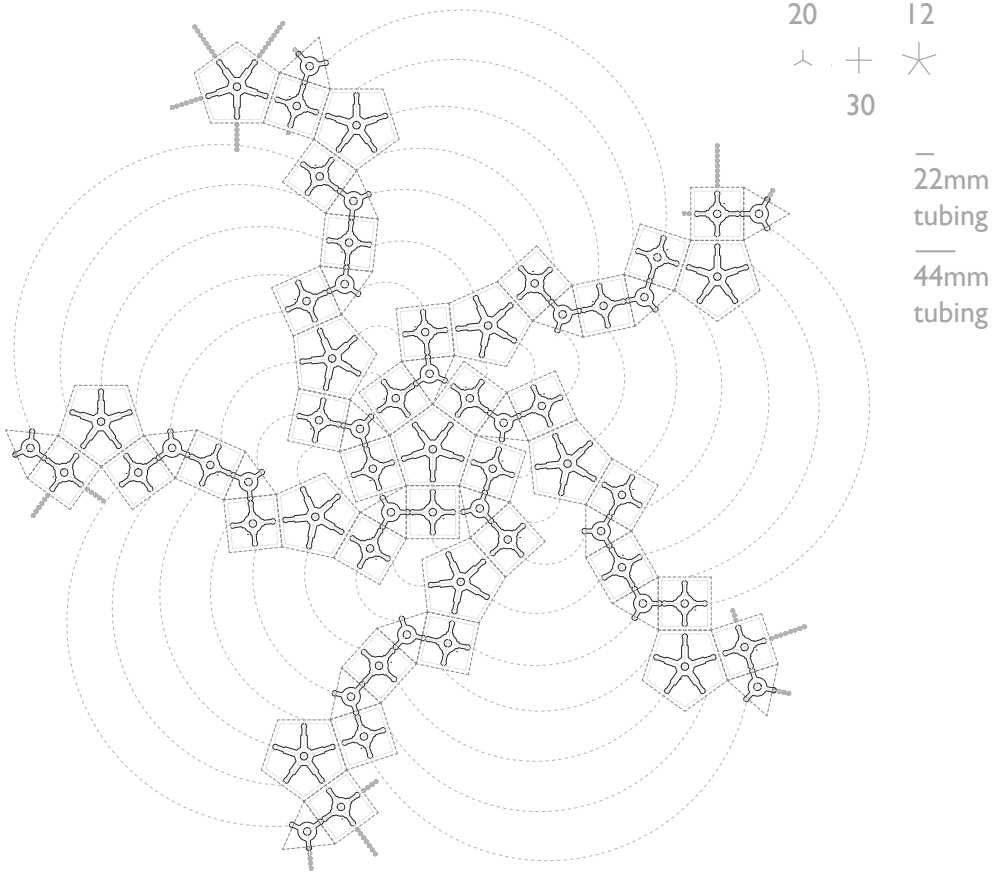
22mm
tubing

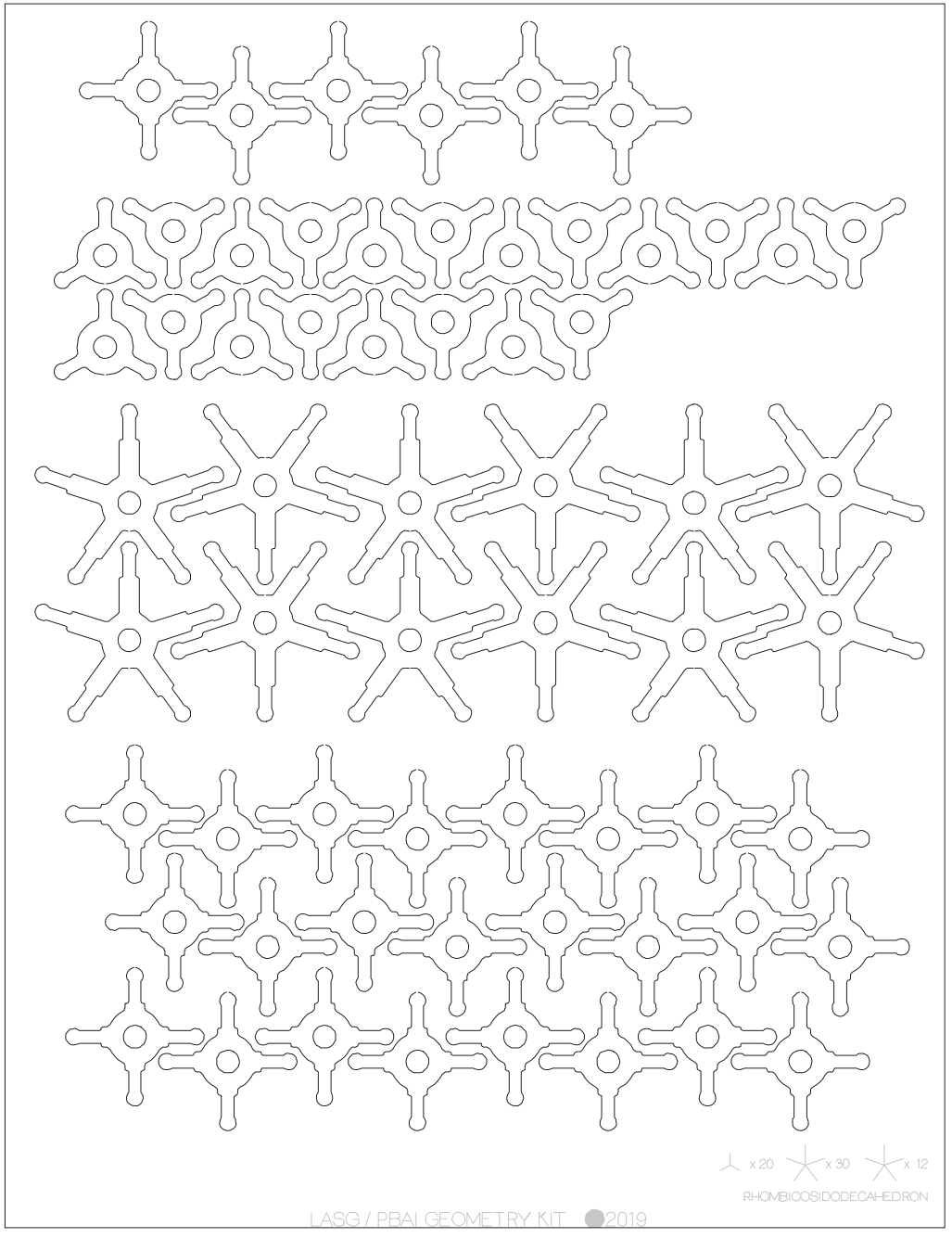



1cm
4cm
8cm
x 20
x 12
TRUNCATED DODECAHEDRON (2/2)
TRUNCATED ICOSAHEDRON (1/2)
LASG / PBAI GEOMETRY KIT ●2019

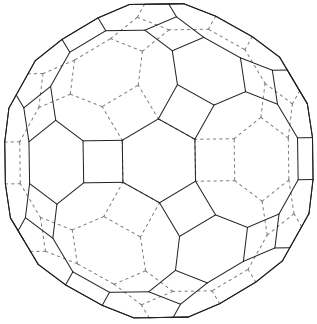
Rhombicosidodecahedron

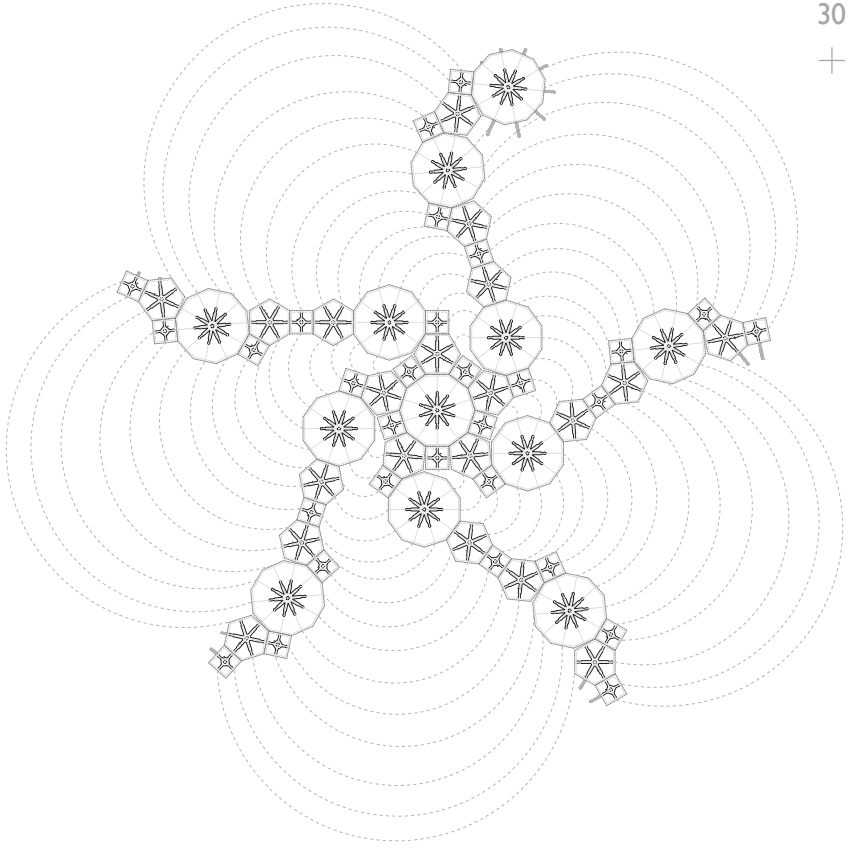


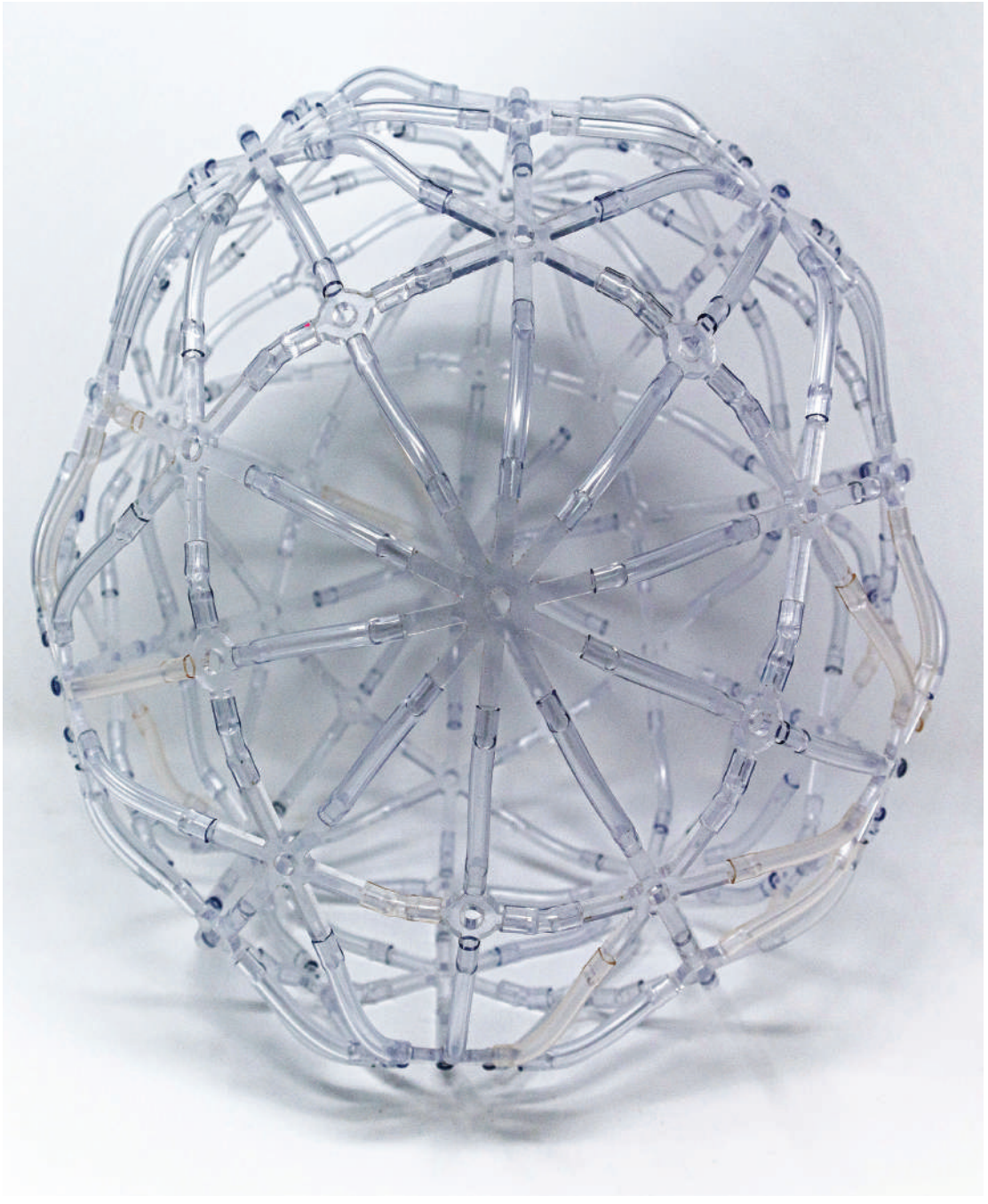


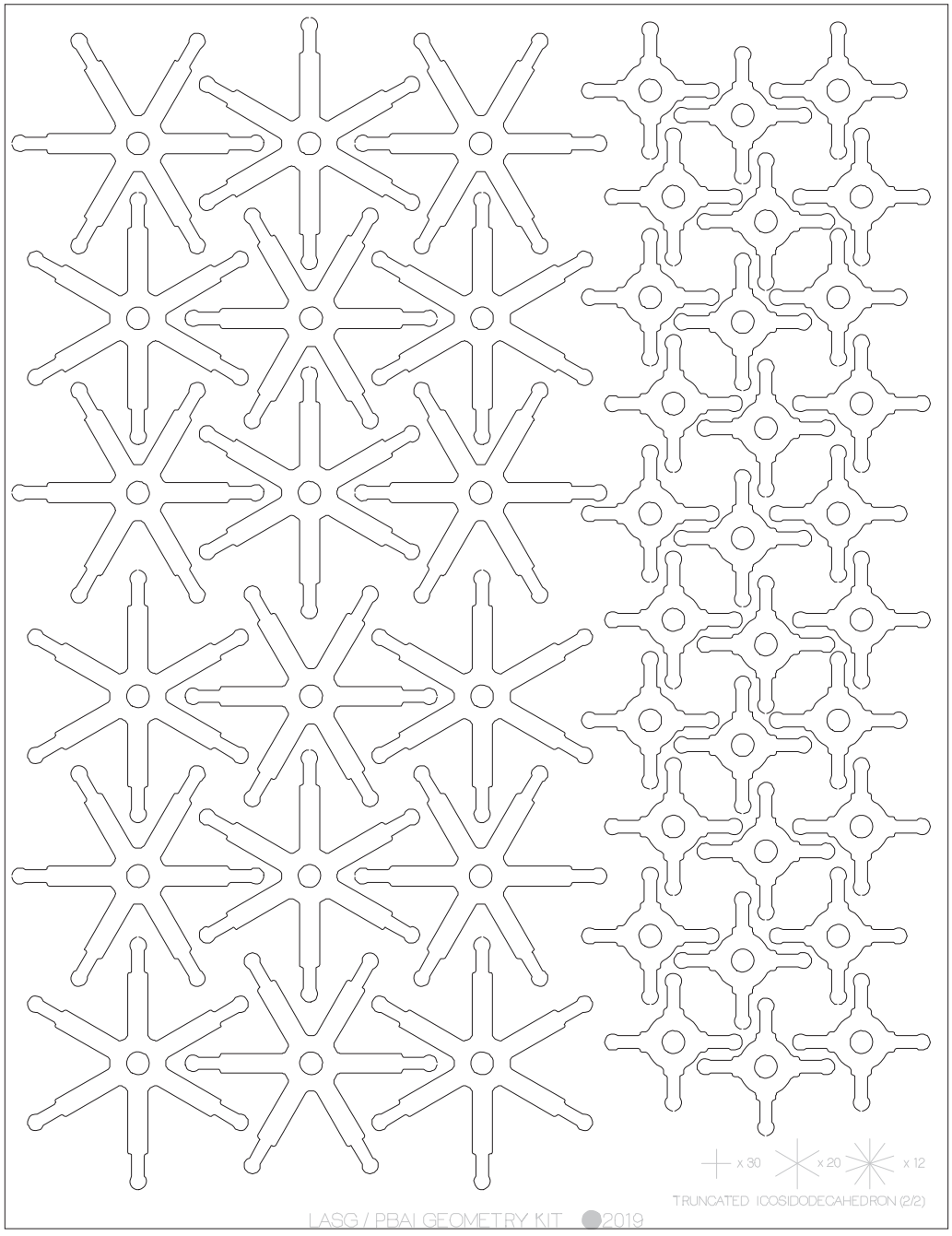

1cm
4cm
8cm
x 20
x 30
x 12
RHOMBICOSIDODECAHEDRON
LASG / PBAI GEOMETRY KIT ●2019

Truncated Icosidodecahedron

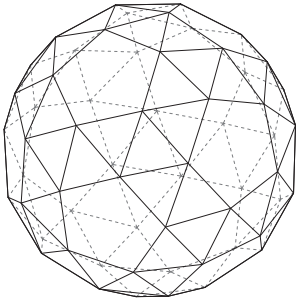


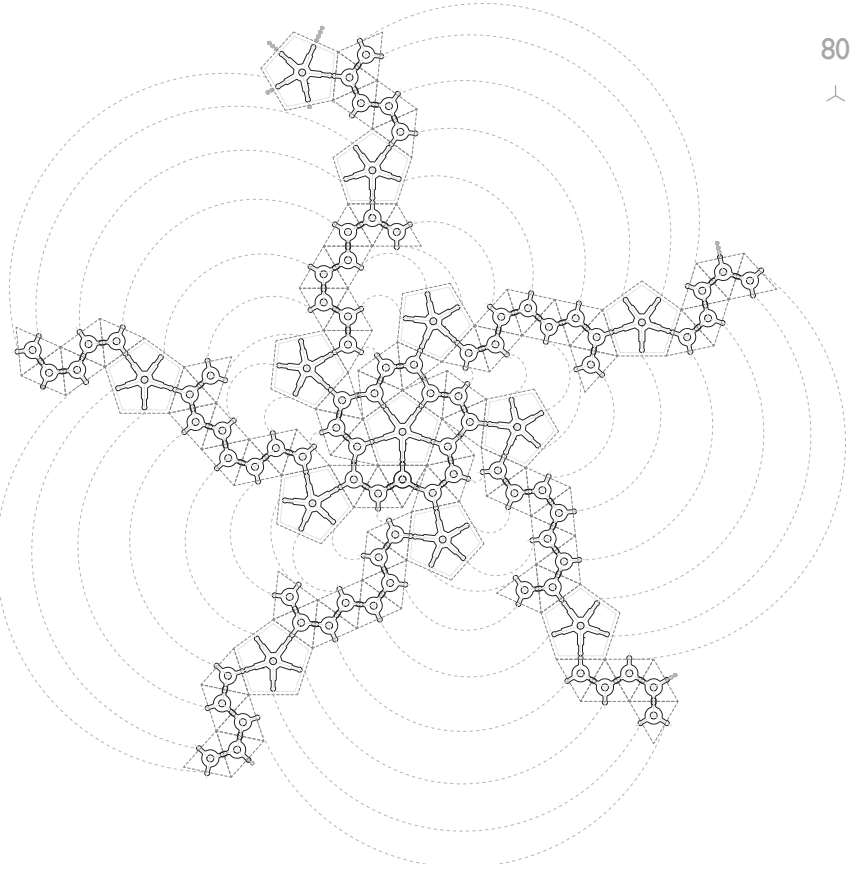





1cm
4cm
8cm
x 30
x 20
x 12
TRUNCATED ICOSIDODECAHEDRON (2/2)
LASG / PBAI GEOMETRY KIT 2019

Snub Dodecahedron

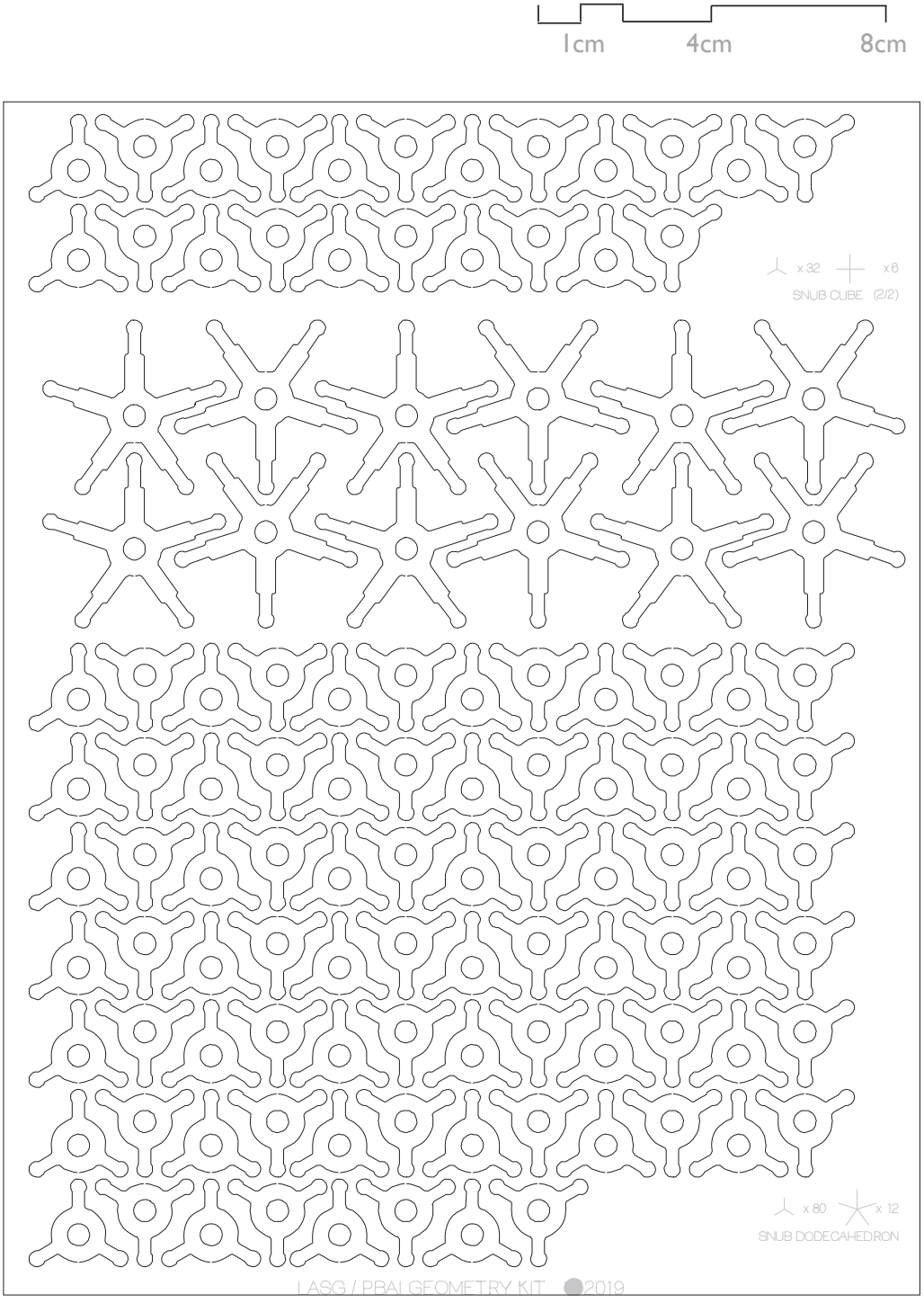




80

12

22mm
tubing


1cm
4cm
8cm
x 32
x 6
SNUB CUBE (2/2)
x 80
x 12
SNUB DODECAHEDRON
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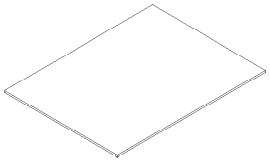
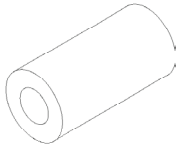
Materials

Item

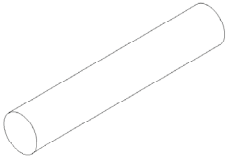
ACRYLITE® Resist™ 65 Acrylic Sheet
8x10 inches, 3mm thick
Specs: 12 sheets for Archimedean Polyhedra
2 sheets for Basic Exploration
11 sheets for Expanded Exploration



McMaster PVC Tubing
OD 1/4 inch, ID 1/8 inch
Specs: 50/100 ft

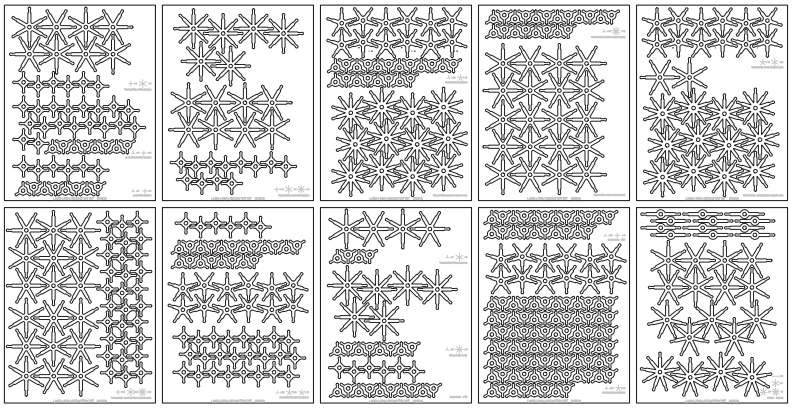


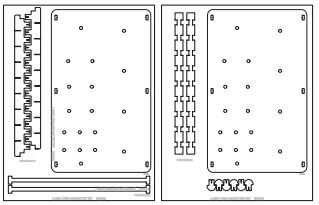
McMaster Extruded Acrylic Rod
L10.6mm, D1/8 inch
Specs: 18 pieces



Cutsheets

Archimedean Polyhedra





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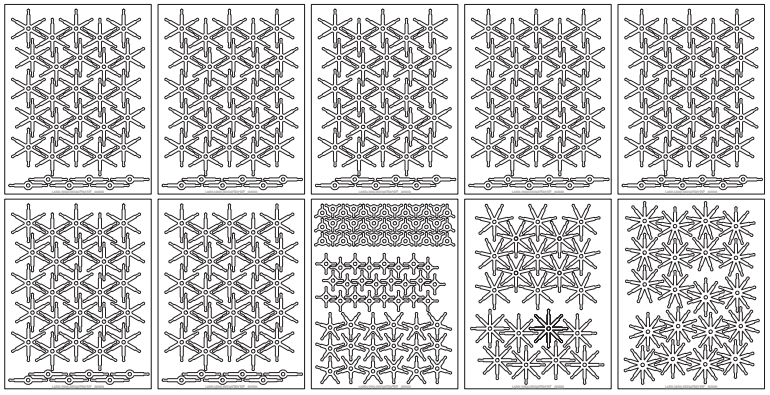
facing page

4 Expanded exploration kit allows for assembly of all polyhedra described in this folio, as well as further experimental form-finding.

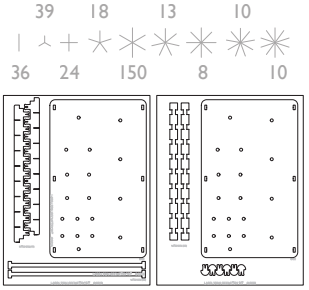
5 Basic exploration kit allows for the assembly of select polyhedra described in this folio.

6 Base and miter board kit

Explorations: Expanded Edition



4



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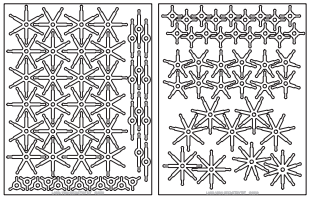
Explorations: Basic Edition



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