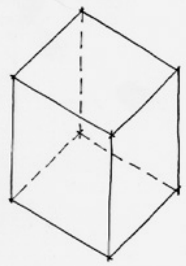
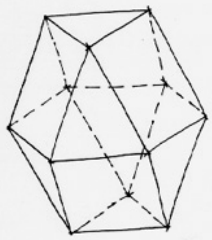
THE CONSTRUCTION OF THE RHOMBIDODECAHEDRON.



THE CUBE :

One of the five regular polyhedrons.
Number of verticies V = 8
Number of edges E = 12
Number of faces F = 6

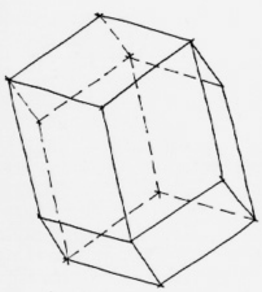
If the cube is truncated at each vertex by planes passing through the middle points of the edges the resulting solid is . . . .



THE CUBEOCTAHEDRON :

One of the 13 semiregular polyhedrons.
All faces are reguler but not identical,all verticies are identical but not regular.
Number of verticies V = 12
Number of edges E = 24
Number of faces F = 14

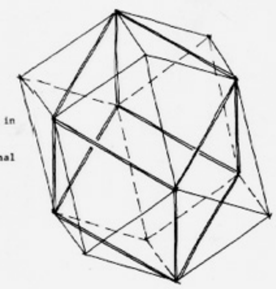
If the number of verticies and the number of faces are exchanged (14 verticies,12 faces) the resulting solid (the dual of the cubeoctahedron) is . . . .



THE RHOMBIDODECAHEDRON :

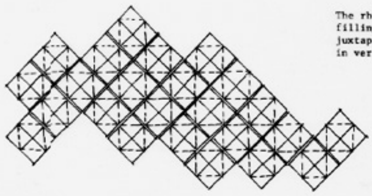
One of the 13 semiregular duals.
All faces are identical but not regular,all verticies are regular but not identical.

A cube can be inscribed in a rhombidodecahedron:
All edges of the cube represent a short diagonal of all faces.

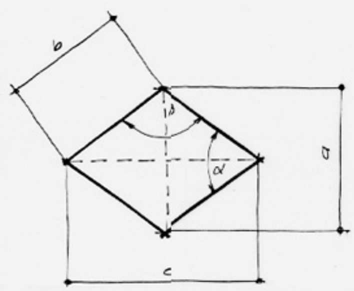


Assuming hinged joints at all verticies the new polyhedron is indeformable (or stable) because it satisfies the "Floppe Formula":

Number of edges = 3 x number of joints - 6
E = 3V-6
36 = 3 x 14 - 6



The rhombidodecahedron is a space-filling solid.This diagram shows the juxtaposition with the long diagonals in vertical position.



GEOMETRICAL DATA:

a		$17 \cdot 500'$
b	$a/2\sqrt{3}$	$15 \cdot 156'$
c	$a\sqrt{2}$	$24 \cdot 748'$
α	$tg\,\alpha/2 = \sqrt{2}/2$	$\alpha = 70°32'$
β	$tg\,\beta/2 = \sqrt{2}$	$\beta = 109°28'$
ω	$120°$	

Indian Carry Resort 1 Concept diagrams

Indian Carry Resort

	Image caption	*Image attribution*
1	Concept diagrams	Safdie Architects
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Published by the Moshe Safdie Archive, Rare Books and Special Collections, McGill University Library, 2015.