

Atir Software Development LTD

STRAP - Spiral stairs

Verification

All rights, including those of translation, are reserved.

No portion of this document may be reproduced, including photocopying without a written permission from Atir Engineering software LTD.

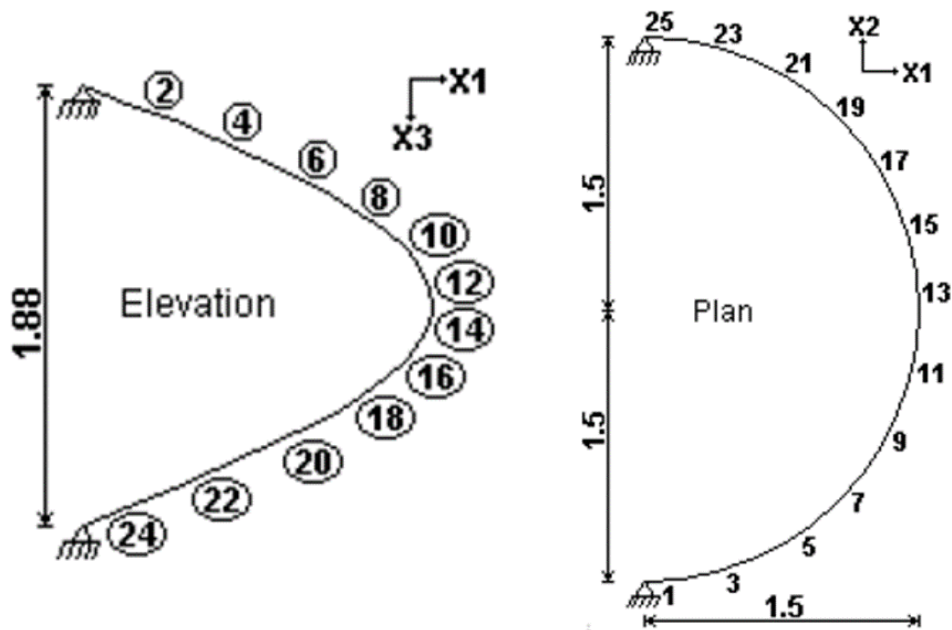
© Atir Engineering software LTD
13 Kehilat saloniki, Tel Aviv, Israel
Tel: +972-3-6480129
Website: <http://www.atir.com>
Email: atir@atirsoft.com

Table of contents

1. Description.....	3
2. Geometry	3
3. Loads.....	3
4. Reference	3
5. Comparison of Results.....	3

1. Description

A helical stair is modeled as a three-dimensional frame consisting of beam elements.



2. Geometry

Radius to center line of stairs: 1.5[m]

Total vertical rise: 1.885[m]

Stair dimensions: 1.5[m] width x 0.15[m] depth

Modulus of Elasticity: 3,000,000; Poisson ratio: 0.3

Elements: 24 beam elements; Supports: Pinned

3. Loads

Beam load: FX3 = -1.0 t/m on all beams

4. Reference

The STRAP results were compared to those obtained using the SAP80 analysis program.

5. Comparison of Results

Beam	Result type	Result		Deviation
		SAP80	STRAP	
24	M3 moment	-3.358	-3.358	-
1	Axial force	2.796	2.796	-