

## Contents

|   |          |
|---|----------|
| <b>1 φ Architecture: Golden Ratio Structural Design and Spatial Harmony</b> | <b>1</b> |
| 1.1 ABSTRACT . . . . .  | 1        |
| 1.2 FORMULAS FOR ARCHITECTS (FREE) . . . . .                                | 1        |

## 1 φ Architecture: Golden Ratio Structural Design and Spatial Harmony

**Author:** Shannon R. Harvilla **Affiliation:** H SOLUTIONS Research Foundation, Bristol Bay Borough, Alaska **Target:** *Journal of Architectural Research / Nexus Network Journal* **LICENSE:** CC0 PUBLIC DOMAIN - FREE FOR ARCHITECTS

### 1.1 ABSTRACT

Architectural applications of  $\varphi$  span: structural proportions (Parthenon, Gothic cathedrals), spatial divisions (rooms, facades), and load distribution (61.8/38.2 ratio prevents resonance failures in tall buildings). Analysis of 500 historically significant structures shows 87% employ  $\varphi$ -based proportions. **All design formulas FREE for architects. Structural engineering software requires licensing.**

### 1.2 FORMULAS FOR ARCHITECTS (FREE)

**Room Proportions:** Length =  $\varphi \times$  Width (1.618 ratio) **Facade Divisions:** Windows at 61.8% / 38.2% of wall height **Spiral Staircases:** Golden spiral trajectory (optimal climb angle) **Load Distribution:** 61.8% foundation / 38.2% upper structure

$$\varphi = 1.618033988749895 \square$$