



## **Detailed Capability Statement**

### **1. Introduction:**

SOLIENG Inc. is a small woman owned business started in 2016 providing mechanical/ structural design and analysis services. The company detailed information is listed in the table below.

| <b>SOLIENG Inc.</b> |                                                                          |
|---------------------|--------------------------------------------------------------------------|
| Address             | 101 E. Holly Ave., Ste 15, Sterling, VA 20164                            |
| Phone               | (703)855-4902                                                            |
| Email               | <a href="mailto:hazem.soliman@solieng.com">hazem.soliman@solieng.com</a> |
| Cage Code           | 7R1P3                                                                    |
| UEI                 | R2J3GXW4KAM1                                                             |
| DUNS                | 080434930                                                                |
| GSA Contract        | 47QREA25D0008                                                            |
| NAICS Codes         | 541330, 541715, 336411, 488190, 541380, 541990, 541690, 541420           |

SOLIENG INC. main experience falls within the aerospace structures industry. We have served NASA Goddard on the Roman Space Telescope project for 18 months. We also served Virgin Galactic for 12 months on the VMS EVE project, and we are serving Optimum Technologies on multiple space projects. Our prime engineer has more than 25 years of experience in the aerospace structures field.

### **2. Services:**

#### **2.1 Mechanical Design**

We perform structural design for space vehicles primary structure as well as secondary structure. Our design effort is always driven by the customer's requirements and mission objectives. Additionally, we perform design tasks for ground support/ handling equipment and test support equipment such as test fixtures.

#### **2.2 Mechanical Analysis**

Structural analysis is our main service provided to our customers. We create Finite Element Models (FEMs) for the structure under consideration with very stringent modeling rules and requirements to make sure the models are representative of the structure and hence providing accurate results. We perform a wide range of analyses including:

- a. Static/ Quasi-Static loading analysis
- b. Static Buckling analysis
- c. Dynamic analyses including sine vibration, random vibration, vibro-acoustic, and dynamic buckling
- d. Thermal stress analysis



- e. Coupled loads model creation and analysis
- f. Launch vehicle loads processing
- g. Pre-test analysis for tests including structure static loads testing, components dynamic testing, and fully integrated spacecraft dynamic testing

## 2.3 Test Support

In addition to performing pre-test analyses, we also provide on-site as well as remote test support. This includes creating all software tools necessary to process test data and performing finite element model correlation to improve the accuracy of the FEMs as needed.

## 2.4 Research and Development

We assist our customers in their R&D efforts to improve the performance of their products as well as create new products to address market needs. Design optimization and trade studies are two of our strength areas with excellent results for all projects we participated in.

## 3. Experience:

The chief engineer/ engineering manager at SOLIENG Inc. has a Ph.D. degree in Aerospace Engineering from Virginia Polytechnic Institute and State University (known as Virginia Tech) which is a highly ranked engineering school in the Aerospace engineering field. Additionally, he has more than 25 years of experience working in the aerospace structures design analysis, and testing including 15 years working at Northrop Grumman Space Systems. During his service at Northrop Grumman, he worked on more than 25 spacecraft projects and led the design, analysis and testing efforts. This high-level experience of the engineering manager helps leading the team towards completing all tasks assigned to the company engineers efficiently and with high accuracy results.

The customers and projects we served are:

- a. Customer A: design, analyze, and test medical implants
- b. Customer B: perform structural analysis for the VMS EVE project
- c. NASA: lead the integration and test effort for the Integrated Payload Assembly (IPA) of the Nancy Grace Roman Space Telescope
- d. Customer C: perform design, analysis, and testing for multiple projects such as PTS and SBI
- e. Customer D: perform design and analysis for the LENS spacecraft structure
- f. Customer E: perform design, analysis, and testing for multiple projects including Caracal, and COBR