

Statement of Work

For

Softwall Shelter

Solar Shades

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ATTACHMENTS

- Appendix I Statement of Work for Publications for Softwall Shelter Solar Shades
- Appendix II Commercial Engineering Drawings and Associated Lists for Softwall Shelter Solar Shades

1.0 SCOPE

1.1 Purpose

- 1.1.1 This Statement of Work (SOW) describes the requirement for Solar Shades for the fleet of Softwall Shelters of the Canadian Forces in two different configurations.

1.2 Intended use

- 1.2.1 The Solar Shades are intended to be installed with Canadian Forces (CF) softwall shelters systems. These solar shades would reduce the heat transfer through the shelter exterior from direct sun effects thus reducing the daily air conditioning load and reliance of diesel fuel.

1.3 Acronyms

CAN	National Standard of Canada
CCOHS	Canadian Centre for Occupational Health and Safety
CF	Canadian Forces
COTS	Commercial Off-The-Shelf
CSA	Canadian Standards Association
DND	Department of National Defence
FAT	First Article Test
GQA	Government Quality Assurance
HDPE	High Density Polyethylene
ILS	Integrated Logistic Support
ISO	International Standardization Organization
MOTS	Modified Off-the-Shelf
NATO	North Atlantic Treaty Organisation
NDID	National Defence Index of Documentation
NFPA	National Fire Protection Association
NSN	NATO Stock Number
OEM	Original Equipment Manufacturer
PDSS	Provisioning Documentation Selection Sheet
QA	Quality Assurance
QAR	Quality Assurance Representative
SOW	Statement of Work
TA	Technical Authority
UL	Underwriters Laboratories Incorporated
ULC	Underwriters' Laboratories of Canada
UVR	Ultra Violet Radiation

2.0 APPLICABLE DOCUMENTS

2.1 Applicability.

The following documents of the exact issue and revision form a part of this document to the extent specified herein. Where no exact issue or revision is indicated the latest issue in effect at the release of this document shall be used.

A-AD-100-100/AG-000	National Defence Publishing Policy and Administration Procedures
A-DS-100-100/AG-002	Writing, Format and Production Guide to Administrative, Operational and Tactical Publications
ASTM D1424	Standard Test Methods for Tearing Strength of Fabrics
ASTM D3776	Standard Test Methods for Mass Per Unit Area (Weight) of Fabric
ASME Y14.100	Engineering Drawing Practices
ASME Y14.24	Types and Applications of Engineering Drawings
ASME Y14.34M	Associated Lists
CAN/ULC-S109	Flame-Resistant Fabrics and Films
C-01-100-100/AG-001	Specification – Authoring Publishing & Distribution (APDS) Deliverables Requirements
C-01-100-100/AG-005	Specification – Acceptance of Commercial and Foreign Government Publications as Adopted Publications
C-01-100-100/AG-006	Specification – Writing, Format and Production of Technical Publications
C-01-100-100/AG-008	Specification – Writing Guide for Technical Documentation
D-01-100-203/SF-000	Specification – Preparation of Operating Instructions
D-01-100-204/SF-000	Specification – Preparation of Preventive Maintenance Instructions
D-01-100-205/SF-000	Specification – Preparation of Corrective Maintenance Instructions
D-01-100-214/SF-000	Specification – Supplementary Provisioning Technical Documentation
D-01-004-002/SF-000	Drawings, Engineering and Associated Lists
D-02-002-001/SG-001	Standard – Identification Marking of Canadian Military Property
D-LM-008-002/SF-001	Specification – Specification for Marking for Storage and Shipment
D-LM-008-022/SG-000	Standard for Packaging of Documentation
ISO 9660	Information Processing - Volume and File Structure of CDROM for Information Interchange
NFPA 701	National Fire Protection Association
TIFF Revision 6	Adobe Systems Incorporated, dated June 3, 1992

Z234.1-00

Canadian Metric Practices Guide

3.0 REQUIREMENTS

3.1 General.

- 3.1.1 All components of the Solar Shade shall withstand the rigors of operational and tactical transportation by ship, truck, rail or plane, in difficult conditions, such as rough handling, turbulent waves, or rugged, primitive roads.
- 3.1.2 The Solar Shade shall be a unified system of proven, standard equipment available as a Modified off-The-Shelf (MOTS) or Commercial off-The-Shelf (COTS) technology.
- 3.1.3 DND requires Solar Shades to accommodate two sizes of its fleet of soft wall shelters with circular type roofs. The two shelters sizes are:
 - 3.1.3.1 Base footprint of 16 ft wide x 32 ft long shelter with a peak dome height of approximately 9 ft.
 - 3.1.3.2 Base footprint of 20 ft wide x 24 ft long shelter with a peak dome height of approximately 11 ft.
- 3.1.4 The shelters can be assembled end-to-end to form longer length complexes (i.e. two 20' x 24' shelters combined to get one shelter of 20' x 48') and as such the Solar Shades shall be able to be installed to accommodate the combining of the shelters in this fashion.
- 3.1.5 The Solar Shade outlined in this SOW shall consist of all components required to install a complete assembly onto the shelter. This includes all solar shade material, mounting poles and any required attachment hardware.
- 3.1.6 Set-up time shall be less than one (1) hour and the installation shall require a maximum of four (4) personnel without the use of any special equipment or heavy lifting capabilities.

3.2 System Characteristics.

3.2.1 General Solar Shade Material Characteristics and Specifications.

- 3.2.1.1 Solar Shade material shall be High Density Polyethylene (HDPE).
- 3.2.1.2 Material shall be fire rated to National Fire Protection Association (NFPA) 701 or CAN/ULC-S109.

- 3.2.1.3 The service life of solar shade material is expected to be a minimum of five (5) years of continuous use.
 - 3.2.1.4 The shelf life of solar shade material is expected to be a minimum of ten (10) years.
 - 3.2.1.5 Average minimum mass of solar shade material shall be nine (9) oz/yd² based on ASTM D3776 – Standard Test Methods for Mass Per Unit Area (Weight) of Fabric.
 - 3.2.1.6 Minimum tear strength shall be 40 lbf in both the warp and weft direction based on ASTM D1424 – Standard Test Methods for Tearing Strength of Fabrics.
 - 3.2.1.7 Minimum Ultra Violet Radiation (UVR) blockage shall be 80%.
 - 3.2.1.8 Solar Shades shall cover at a minimum 70% of the exposed outside surface of the shelters. The shelter end-walls do not need to be covered and are not included in the exposed surface requirement calculation.
 - 3.2.1.9 Solar Shades shall cover the roof area and provide even coverage on both sides of the shelters.
 - 3.2.1.10 Material shall be open mesh to allow for air flow.
 - 3.2.1.11 Material colour shall be olive drab or TA approved equivalent.
- 3.3 Construction.
- 3.3.1 Materials used in the Solar Shade, its sub-systems and components shall be new and of the highest quality and be consistent with good commercial practice.
 - 3.3.2 The Solar Shade shall operate without malfunction, in all climatic conditions with the ambient temperature from -40°F / -40°C through 122°F / 50°C inclusive.
 - 3.3.3 The Solar Shade shall be self-contained within the envelope of the shelter such that no guy wires or stakes will extend from the Solar Shade as these may cause potential tripping hazard during nighttime activities.
 - 3.3.4 A minimum gap clearance of three (3) inches between the Solar Shade and the softwall shelter wall shall be maintained to create an airflow pocket between the two surfaces.

- 3.3.5 The Solar Shade shall include ventilation cut-out holes to reduce wind effects and promote air circulation between Solar Shade and Shelter surface.
- 3.3.6 All end seams shall be in a sealed condition to alleviate fraying.
- 3.3.7 The Solar Shade shall be able to withstand winds up to 90 km/hour from any direction without affecting the usability of the solar shade.
- 3.3.8 The Solar Shade shall be designed and constructed with materials that deter the growth of fungus, or are sufficiently treated to deter the growth of fungus.
- 3.3.9 The Solar Shade shall be supported by the use of poles and shock cords.
- 3.3.10 The Solar Shade poles shall be designed to be installed by utilizing existing attachment points located on the bottom exterior of the shelter sidewalls. The attachment points are situated on both sides of the shelters beginning 2 feet from the edge and continuing lengthwise along the entire length at 4 foot intervals with the last attachment point being 2 feet away from the edge.
- 3.3.11 The poles shall be lightweight, interlocking segment, cold weather shock-cording, aluminum poles. The shock cord shall lose no more than one percent of its elasticity in any of the environmental conditions described within this SOW.
 - 3.3.11.1 The pole material shall be aluminum 7075-T7 or T9 alloy main tubes and insert ferrules at each joint bonded into the main tube. The finish shall be Type 2B Hard Anodize.
 - 3.3.11.2 The poles shall not be Fiberglass as it has lower strength-to-weight ratio, lower crush strength, and poor abrasion resistance compared to aluminum. Also, when it breaks, it can splinter greatly due to unidirectional construction methods that make it next to impossible to repair in the field.
- 3.3.12 A canvas type bag for storing the Solar Shade shall be designed to allow it to be moved and carried around by one person. Each Solar Shade shall have its own bag.
 - 3.3.12.1 If the combined weight of the shade and poles is greater than 32 kg (70 lbs) which is the maximum allowable weight for a single person lift, then the poles and attaching hardware shall come with their own canvas bag(s) being able to store within the larger shade canvas bag.
 - 3.3.12.2 The canvas bag shall not be longer than 1 m (39 inches) \pm 0.1 m.

3.3.13 The maximum packed volume for storage and transportation of the solar shade assembly shall not exceed 2.23 m³ (24 ft³).

3.4 Identification, Labeling, Approvals, and Certifications.

3.4.1 Identification Marking of Canadian Military Property.

3.4.1.1 The Solar Shade canvas bag(s) and all major components shall be affixed with an identification tags in accordance with D-02-002-001/SG-001. The TA will provide NATO Stock Numbers (NSN) for the Solar Shade and components.

3.4.2 Regulations and Certifications.

3.4.2.1 The Solar Shade and its components shall be certified and meet all relevant Canadian guidelines, Canadian Standard Association (CSA), Canadian Center for Occupational Health & Safety (CCOHS) regulations, applicable Underwriters Laboratories (UL) / Underwriters' Laboratories of Canada (ULC), and all applicable industry standards to operate within Canada.

3.4.2.2 Copies of the certifications shall be sent to DND.

3.4.3 Instruments, Decal, and Data Plates.

3.4.3.1 All instruments, decals, and data plates shall be marked in metric units with imperial equivalent in brackets. Where international symbols are not possible, bilingual markings are required. Warning or precautionary data plates shall be provided in bilingual format, English and Canadian French, where necessary to protect personnel or equipment.

3.5 Integrated Logistics Support (ILS).

3.5.1 Publications and Technical Data

3.5.1.1 Upon initial call-up, the contractor shall create and submit technical publications and data for the Solar Shade. The TA shall provide National Defence Index of Documentation (NDID) codes for the technical publications. The technical publications and data provided by the contractor shall be as follows;

3.5.1.1.1 Operation and Maintenance (O&M) Manuals; and

3.5.1.1.2 Set-up Check List;

3.5.1.2 Operation and Maintenance Manual.

- 3.5.1.2.1 Upon initial call-up, the contractor shall create and submit an Operation and Maintenance (O&M) Manual in accordance with Appendix I to Annex A (Statement of Work for Publications for Softwall Shelter Solar Shades).
- 3.5.1.2.2 The O&M manual shall be provided in both official languages in Canada (English and French).
- 3.5.1.2.3 The O&M manual portion shall incorporate procedures described in D-01-100-203/SF-000 specification.
- 3.5.1.2.4 The Maintenance Manual portion shall incorporate procedures described in D-01-100-204/SF-000 and D-01-100-205/SF-000 specifications.
- 3.5.1.2.5 The O&M draft shall be delivered to DND within sixty (60) business days following the acceptance of the First Article Solar Shades.
- 3.5.1.2.6 The final O&M shall be delivered to DND within twenty (20) business days of receipt of comments. The format sent to the TA shall be a hardcopy and softcopy in a searchable pdf format or a TA approved equivalent.
- 3.5.1.2.7 The O&M manual shall contain an illustrated exploded view of the solar shade assembly identifying and itemizing each part.
- 3.5.1.3 Set-up Check List.
 - 3.5.1.3.1 Upon initial call-up, the contractor shall produce the Set-up Check List for the Solar Shades.
 - 3.5.1.3.2 The list shall display the tasks in progressive sequence required to prepare the system for operation and for transportation. The list shall only identify the steps.
 - 3.5.1.3.3 The checklist shall be bilingual (French / English). If more than one sheet is required, the sheets shall be bound with spiral binding. A draft of the Set-up Check List shall be provided to DND within twenty (20) business days following the acceptance of the First Article Solar Shades.
 - 3.5.1.3.4 The final Set-up Check List shall be delivered to DND within ten (10) business days of receipt of comments. Also, one (1) final Set-up Check List shall be delivered with each Solar Shade in the document holder. An interim / draft approved

copy may accompany the deliveries until final approved document are printed.

3.5.2 Engineering Drawings and Associated Lists.

- 3.5.2.1 Upon initial call-up, the contractor shall provide Engineering Drawings and Associated Lists of the Solar Shade in accordance with Appendix II to Annex A (Commercial Engineering Drawings and Associated Lists for Softwall Shelter Solar Shades).
- 3.5.2.2 The Engineering Drawings and Associated Lists shall be in English only.
- 3.5.2.3 The Engineering Drawings and Associated Lists shall be delivered to DND within thirty (30) business days following the acceptance of First Article Solar Shade.
- 3.5.2.4 The final engineering Drawings and Associated Lists shall be delivered to DND within twenty (20) business days of receipt of comments.

3.5.3 Training

3.5.3.1 Training Plan

- 3.5.3.1.1 Upon initial call-up, the contractor shall provide a training plan, which shall be approved by the TA. A training plan draft shall be delivered to the TA thirty (30) business days following the acceptance of the First Article Test (FAT) Report. The final training plan shall be provided to the TA within twenty (20) business days of receipt of comments.
- 3.5.3.1.2 The training plan shall include:
 - 3.5.3.1.2.1 The duration of the course, not to exceed two (2) business days.
 - 3.5.3.1.2.2 Overview of the course content (teaching points and estimated time devoted to each) required so that each student shall attain the level of competency necessary to conduct the training of other students.
 - 3.5.3.1.2.3 Description of the contractor's method of student assessment, including pass/fail criteria.
 - 3.5.3.1.2.4 Requirements for classroom and other training equipment and facilities.

- 3.5.3.1.3 The Training Plan shall be provided in contractor's format.
- 3.5.3.2 Training Course
 - 3.5.3.2.1 The contractor shall provide one (1) comprehensive "Train the Trainer" course for a total of five (5) operators and maintenance personnel.
 - 3.5.3.2.2 Training will be conducted at the DND supply depot in Laval Quebec.
 - 3.5.3.2.3 Training is only required on one of the shelter types as long as the method for installation is identical.
 - 3.5.3.2.4 The training course shall be conducted in English.
 - 3.5.3.2.5 All training aids and course supplies shall be included in the course.
 - 3.5.3.2.6 Training shall include a training video demonstrating how to set-up, install and remove the solar shades and shall be delivered to students and TA in CD-ROM or other TA approved media and format.
 - 3.5.3.2.7 The contractor shall supply to each student a hard copy of the course in a binder and one (1) electronic CD-ROM copy of the course, which shall include all course documentation such as:
 - 3.5.3.2.7.1 Instructor notes,
 - 3.5.3.2.7.2 Lesson plan,
 - 3.5.3.2.7.3 Slides in the form of a Power Point Presentation,
 - 3.5.3.2.7.4 Training video,
 - 3.5.3.2.7.5 Student guide, and
 - 3.5.3.2.7.6 Training material.
- 3.5.4 Initial Provisioning (IP) Documentation and Conferences.
 - 3.5.4.1 IP documentation and conferences include the following:
 - a) Initial Provisioning Guidance Conference (IPGC);
 - b) Supplementary Provisioning Technical Documentation (SPTD); and
 - c) Materiel Change Notice (MCN).

3.5.4.2 Initial Provisioning Guidance Conference (IPGC)

3.5.4.2.1 The purpose of the Initial Provisioning Guidance Conference (IPGC) is to clarify and explain the requirements of the Provisioning Documentation referred to in the Standing Offer.

3.5.4.2.1.1 The IPGC is normally conducted within twenty (20) business days following the issuance of the Standing Offer.

3.5.4.2.2 The contractor shall contact DSCO 5-4 shortly after issuance of the Standing Offer to establish:

3.5.4.2.2.1 Whether or not DND requires an IPGC in this instance; and

3.5.4.2.2.2 To confirm meeting arrangements if the IPGC is required.

3.5.4.2.3 The guidance team will normally consist of one (1) or two (2) DND representatives.

3.5.4.2.3.1 The IPGC will last approximately one (1) business day.

3.5.4.2.4 Conference necessities shall be established by mutual agreement between the contractor and DSCO 5-4 (819) 994-9511

3.5.4.3 Supplementary Provisioning Technical Documentation (SPTD)

3.5.4.3.1 Upon initial call-up, Supplementary Provisioning Technical Documentation, as prepared by the OEM of the item, shall be delivered by the contractor for every item of the solar shade package and is required for the codification and cataloguing of all items.

3.5.4.3.2 The SPTD prepared in accordance with D-01-100-214/SF-000 shall be made available at the latest one (1) month after FAT acceptance.

3.5.4.4 Materiel Change Notice (MCN).

3.5.4.4.1 The purpose of the MCN is to notify DSCO of additions, deletions, or substitutions of components of the equipment being manufactured that may affect the provisioning of support spares.

- 3.5.4.4.2 The contractor shall prepare MCNs until the last equipment manufactured under this Standing Offer is delivered, in accordance with CF Specification D-01-100-215/SF-000.
- 3.5.4.4.3 SPTD for the NATO codification and cataloguing of each new item listed on a MCN is called up in CF Specification D-01-100-215/SF-000, and shall be made as specified in that document.
- 3.5.4.5 Acceptance of IP documentation
 - 3.5.4.5.1 Where the IP documentation involves controlled goods as defined by the Controlled Goods Regulations of the Defence Production Act, the contractor must identify those controlled goods to DSCO 5-4.
 - 3.5.4.5.2 Acceptance of IP documentation, including the PDSS, and the SPTD, will be made by DSCO 5-4.
 - 3.5.4.5.3 Questions regarding the preparation, format or contents of the provisioning documentation identified above are to be directed to:

Director Supply Chain Operations
National Defence Headquarters
MGen George R. Pearkes Building
101 Colonel By Drive
Ottawa, Ontario K1A 0K2
CANADA
Attention: DSCO 5-4
(819) 994-9511

3.6 Project Management

3.6.1 Project Manager.

- 3.6.1.1 The contractor shall provide a Project Manager to manage all technical performance, including reliability, maintainability, risk management, integrated logistics support (ILS), cost, schedule, equipment, and data delivery requirements of the Standing Offer.

3.6.2 Project Start-up Meeting and Progress Status Meetings.

- 3.6.2.1 The contractor shall within twenty (20) business days of issuing the Standing Offer arrange a project start-up meeting with the TA to discuss the scope of work to be performed and project milestones.

3.6.2.2 Progress status meetings, chaired by the TA, shall take place at regular intervals at mutually agreed times and locations.

3.6.2.2.1 The contractor shall be responsible for recording and distributing meeting minutes and action items.

3.7 First Article

3.7.1 Upon initial call-up, the contractor shall produce one (1) first article of each Solar Shade size meeting the requirements of this document.

3.7.1.1 The first article shall be verified against the requirements in the SOW.

3.7.1.2 The first article shall be manufactured using the established procedures, processes, personnel, materials, and facilities of a full production unit.

3.7.2 First Article Test (FAT) Plan

3.7.2.1 The contractor shall provide a copy of the proposed FAT plan to the TA who must approve the plan before testing can commence.

3.7.2.2 The plan shall cover the requirements in the SOW.

3.7.2.3 The test plan shall be forwarded to the TA at least thirty (30) business days prior to the planned date of the FAT.

3.7.2.3.1 The TA will notify the contractor in writing, within ten (10) business days of receipt, of the approval or rejection of the FAT plan.

3.7.2.3.2 Acceptance testing shall not commence until notification is received from the TA that the FAT plan has been approved.

3.7.3 First Article Test (FAT)

3.7.3.1 The FAT shall be conducted at the DND supply depot in Laval, Quebec. DND personnel will set-up the softwall shelters.

3.7.3.2 Upon initial call-up, the contractor shall subject the first article unit to all required first article inspections and tests at system level in accordance with the approved FAT plan to verify conformance to the specified requirements prior to production.

3.7.4 First Article Test Report

3.7.4.1 The first article test data, together with appropriate evidence of DND Quality Assurance Representative (QAR) verification, shall be

forwarded by the Contractor to the TA in the form of a First Article Test (FAT) Report for approval within twenty (20) business days from the completion of testing.

- 3.7.4.1.1 A written notice of approval or rejection of the report shall be provided to the contractor by the TA within ten (10) business days of receipt of the report.
- 3.7.4.2 If the FAT Report is rejected, the contractor shall resolve deficiencies with the equipment and, if requested by the TA, repeat any or all first article tests as expeditiously possible.
- 3.7.4.3 The contractor shall deliver a schedule for resolution of deficiencies and retest to the TA within ten (10) business days of receipt of notice of rejection.
 - 3.7.4.3.1 All costs related to these activities shall be borne by the contractor.
- 3.7.4.4 An amended report shall be delivered by the Offeror to the TA within fifteen (15) business days of completion of retesting.
- 3.7.5 Finalization of the First Article
 - 3.7.5.1 The First Article shall be considered finalized when it is in the accepted configuration following the completion and acceptance of the FAT report, including any changes to equipment because of the FAT.
 - 3.7.5.2 In the event the Solar Shade fails to meet any of these requirements, the contractor shall take immediate corrective action to remedy the problem at the contractor's expense.
 - 3.7.5.3 Upon review of the cause of the deficiency and corrective action proposed by the contractor, DND may require that the contractor verify individually the performance of all units prior to delivery to ensure that they meet the requirements.
 - 3.7.5.4 The contractor shall package and deliver the Solar Shades only after the product has been reviewed and accepted by DND.
- 3.7.6 Delivery of Test Article
 - 3.7.6.1 The contractor may deliver the tested article as a deliverable if the article meets all SOW requirements for acceptance.
 - 3.7.6.2 Delivery will only come into effect when the FAT Report is accepted and a NATO Stock Number (NSN) provided.

4.0 DELIVERABLES

4.1 General.

The contractor shall ensure that the Solar Shades are delivered correctly adjusted, lubricated, and serviced such that the system is ready for operation / transportation.

4.2 List of deliverables.

4.2.1 First Call Up

Item 1	Description	Qty
a.	First Article Solar Shade for 16' x 32' Shelter, NSN – TBD	1
b.	First Article Solar Shade for 20' x 24' Shelter, NSN – TBD	1
c.	Operation and Maintenance Manual (para 3.5.1.2)	2
d.	Set-up Checklist (para 3.5.1.3)	2
e.	Engineering Drawings and Associated Lists (para 3.5.2)	2
f.	Training Plan (para 3.5.3.1)	1
g.	Training Course (para 3.5.3.2)	1
h.	Supplementary Provisioning Technical Documentation (SPTD) (para 3.5.4.3)	2
i.	First Article Test Plan (para 3.7.2)	1
j.	First Article Test Report (para 3.7.4)	1

4.2.2 Individual Call-Up

Item	Description
2	Solar Shade for 16' x 32' Shelter, NSN - TBD Including: Approved Operation and Maintenance Manual Approved Set-up Checklist
3	Solar Shade for 20' x 24' Shelter, NSN - TBD Including: Approved Operation and Maintenance Manual Approved Set-up Checklist