

Statement of Work

Used Single-Wide Manufactured Home and Supporting Services for Cool Roofing Research

Dated September 28, 2026

1. Background and Purpose

Oak Ridge National Laboratory (ORNL) is planning a four-year research project to evaluate the thermal and energy performance of cool-roof technologies. The proposed test specimen is a single-wide manufactured home. The study will compare exterior roof surface treatments under otherwise similar building and operating conditions.

ORNL is seeking a qualified vendor, manufactured housing community, property owner, or other organization capable of providing a used single-wide manufactured home and the associated site and services required to support the research for approximately four years.

The preferred arrangement would allow the home to remain installed at a suitable location for the full project period while ORNL researchers modify and instrument the roof and attic, maintain controlled interior conditions, and periodically access the home for data collection, inspection, maintenance, and testing. Because the project is intended to evaluate differences in roof solar-reflectance characteristics, the site must provide open and unobstructed solar exposure to the roof. The home should not be subject to significant shading from trees, nearby buildings or structures, hillsides, terrain, utility structures, or other permanent or seasonal obstructions that could affect solar exposure or introduce exposure differences over the test roof.

2. Manufactured Home Requirements

The proposed manufactured home should meet the following requirements:

Required characteristics

- Used single-wide manufactured home in structurally sound and serviceable condition.
- Minimum overall length of approximately 60 feet.
- A home approximately 70 feet long is strongly preferred to provide sufficient roof area for the experimental sections.
- Conventional single-wide construction.
- Conventional flat interior ceiling, rather than vaulted, cathedral, or similar ceiling construction.
- Roof and attic construction suitable for dividing the attic into seven separate experimental sections.
- Roof framing must be sufficiently sound to permit installation of new sheathing and asphalt shingles.
- Interior shell must be sufficiently intact to allow the home interior to be continuously conditioned during the study.
- Functional electrical service capable of supporting HVAC equipment, research instrumentation, data acquisition equipment, lighting, and other normal research loads.
- Exterior doors and windows should be capable of being secured and weather tight.

Preferred characteristics

- Approximately 14 to 16 feet wide.
- Approximately 70 feet in length.

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- Uniform roof geometry over most of the length of the home.
- Minimal roof penetrations, dormers, changes in roof geometry, or other features that would interfere with establishing seven comparable roof test sections.
- Existing HVAC system in operating condition, or the ability to install HVAC equipment.
- Reasonable access around the home for researchers, contractors, roofing crews, and instrumentation installation.

The home does not need to be cosmetically renovated or suitable for residential occupancy. However, the building envelope, floor system, roof structure, electrical system, and other components necessary for safe research operations must be in serviceable condition.

3. Research Modifications

ORNL anticipates making the following research-related modifications to the manufactured home. These modifications are expected to include:

1. **Attic partitioning:** The attic space will be divided into approximately seven separate test sections. Each section will correspond to a roof treatment located directly above the respective attic section. Attic partitions will extend from the ceiling plane to the underside of the roof assembly as necessary to reduce thermal and airflow interaction between adjacent test sections.
2. **Roof replacement or reroofing:** New sheathing and asphalt shingles will be installed over the roof or as part of an appropriate reroofing system.
3. **Roof surface treatments:** Shingles above the seven attic test sections will be treated with different surface colors and/or coatings to provide different solar-reflectance conditions for the experiment.
4. **Instrumentation:** ORNL will install temperature, heat-flux, humidity, electrical-energy, surface-temperature, solar-radiation, HVAC, and other research sensors within the roof, attic, interior, and exterior of the home.
5. **Interior environmental control:** The interior of the manufactured home will be maintained at temperatures representative of a typical occupied home, generally within approximately 68°F to 75°F, depending on season and experimental protocol.
6. **Data acquisition and communications:** The home will contain data acquisition equipment requiring continuous electrical power and reliable internet connectivity.

4. Site Requirements

Seller shall provide or identify a suitable location where the manufactured home can remain installed for approximately four years. Site characteristics are important to the technical validity of the research because the seven roof sections must experience reasonably comparable solar exposure and surrounding environmental conditions.

The site should provide:

- Open and unobstructed solar exposure to the roof throughout the primary daylight hours.

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- A location that is not significantly shaded by trees, nearby buildings or structures, hillsides, surrounding terrain, utility structures, or other obstructions.
- Sufficient separation from nearby objects so that shadows do not move across or disproportionately affect individual roof test sections during the study period.
- A generally open site that minimizes localized differences in solar exposure among the seven roof test sections.
- A stable manufactured-home lot or equivalent research location.
- Electrical service.
- Any other utilities required for safe operation of the home and HVAC equipment.
- Internet service suitable for remote data acquisition.
- Reasonable year-round access for ORNL researchers and authorized contractors.
- Permission for roof replacement, roof coatings or painting, attic modifications, instrumentation, and other research-related modifications.
- Sufficient access around the home for roofing, HVAC, electrical, instrumentation, and maintenance activities.
- A location where the home can remain in place for the full research period.
- Appropriate site security.
- Appropriate water and sewer services.

5. Four-Year Operating Services

Seller shall maintain the manufactured home and site. Maintenance shall include:

5.1 Manufactured Home

- Purchase, lease, or other cost associated with providing the used manufactured home.
- Transportation and delivery, if required.
- Setup, blocking, leveling, anchoring, and installation.
- Required permits or inspections.
- Initial electrical connection.
- Skirting or other weather protection, if required.
- Removal or disposition of the home at the end of the project, if applicable.

5.2 Lot or Site

- Lot rent or site lease.
- Property-related fees.
- Community or site fees.
- Required site maintenance.

5.3 Utilities

- Electricity.
- Water and sewer, if required.
- Other required utility charges.
- Utility connection fees.
- Monthly base or service charges.

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Because the home will be maintained at approximately 68°F to 75°F throughout the project, electrical consumption should account for continuous HVAC operation as well as research instrumentation and data acquisition equipment.

5.4 Internet Service

Reliable continuous internet service is preferred because research data may be transmitted remotely from the site.

- Internet installation or activation.
- Modem/router or associated equipment.
- Monthly internet service.
- Any data limitations or restrictions.

5.5 Insurance

- Manufactured-home property insurance.
- Site or liability insurance.
- Other coverage required by the respondent or property owner.

5.6 Security

- Locks and physical security.
- Security monitoring service, and/or Cameras.

6. Period of Performance

The anticipated research period is approximately four years from project initiation and site acceptance.

The home must remain at the same location throughout the entire project.