

SPECIFICATION GUIDE

ELD Specification Guide for Government & Federal Facilities:

How to Write Electronic Leak Detection into Your Project Scope

Who This Guide Is For: Contracting officers, project managers, and facilities managers at federal agencies, military installations, GSA-managed properties, and government-owned buildings who are responsible for specifying or procuring roofing services.

Electronic Leak Detection (ELD) is one of the most effective quality assurance and preventive maintenance tools available for low-slope and membrane roof systems — and it is increasingly required on federal construction and renovation projects. Yet many contracting officers and facilities managers encounter a gap: they know ELD should be part of the scope, but they aren't sure how to write it in.

This guide closes that gap. It walks you through the “why,” the “what,” and the “how” of specifying ELD in a Request for Proposal (RFP) or Statement of Work (SOW) — including the standards to cite, the language to use, and the deliverables to require from your vendor.

Section 1: What Is Electronic Leak Detection — and Why Does It Matter for Government Facilities?

Electronic Leak Detection is a non-destructive testing method used to locate breaches, voids, and potential failure points in roofing membranes before they become active leaks. For government facilities managers, ELD addresses two persistent challenges:

- **Budget unpredictability:** Water intrusion into federal buildings causes damage that is far more expensive to remediate than the original leak would have been to detect. A single undetected breach can lead to mold remediation, structural repairs, and disrupted building operations — costs that strain capital improvement budgets.
- **Accountability and documentation:** ELD provides an objective, documented baseline for roof condition — critical for facilities required to maintain asset records, fulfill audit requirements, or justify capital expenditures through multiple approval layers.

The Two Primary ELD Methods

There are two standard ELD methods, each appropriate for different roofing systems and project conditions. Understanding the difference allows you to specify correctly:

Method	Description
Electric Field Vector Mapping (EFVM)	Uses a low-voltage current applied across a dry membrane surface to detect breaches through disruption of the electric field. No water required.
Low-Voltage (Wet-Surface) Testing	Applies a water layer to the membrane surface and uses electrical probes to locate points where current travels through the membrane to a grounding conductor embedded below.
Best for: Occupied buildings, finished roof systems with existing ballast or overburden	ASTM E2905 / ASTM D7877
Best for: New construction, freshly installed membrane, pre-occupancy QA	ASTM D7877

Key Point: Both methods are non-destructive and leave no lasting impact on the membrane. A qualified ELD contractor will recommend the appropriate method based on system type, existing conditions, and project phase.

Section 2: Applicable Standards and References

When writing ELD into a specification, the following standards should be referenced. Citing these standards ensures that contractors understand the expected methodology and allows for objective quality verification.

Requirement	Sample Specification Language
ASTM E2905	<i>Standard Practice for Examination of Dry Installed Roofing Membrane Using Electric Field Vector Mapping</i>
ASTM D7877	<i>Standard Guide for Electronic Methods for Detecting and Locating Leaks in Waterproof Membranes</i>
NRCA Roofing Manual	<i>Low-Slope Membrane Roof Systems — guidance on quality assurance and testing during construction</i>
Uptime Institute (data centers)	<i>Applicable for mission-critical or data center facilities requiring continuous operations documentation</i>
UFC 3-110-03 (DoD)	<i>Department of Defense Unified Facilities Criteria for Roofing — references testing protocols and contractor qualifications</i>

Note for DoD Facilities: UFC 3-110-03 may already reference ELD testing requirements for certain building types. Review the applicable UFC before writing your specification to ensure alignment and avoid conflicting language.

Section 3: How to Write ELD into an RFP or Statement of Work

The following structure provides a framework for incorporating ELD testing into a government procurement document. Language should be adapted to the specific project type, facility classification, and applicable agency standards.

3.1 Scope of Work Language

Include the following type of language in the testing and quality assurance section of your SOW or RFP:

The contractor shall provide electronic leak detection (ELD) testing of all completed low-slope roofing membrane surfaces prior to substantial completion. Testing shall be performed using [EFVM / low-voltage] methodology in accordance with [ASTM E2905 / ASTM D7877], as appropriate to the roof system type and current site conditions. Testing shall be performed by a qualified ELD contractor with demonstrated experience on federal or institutional facilities.

3.2 Contractor Qualification Requirements

Specify minimum qualifications to ensure the ELD contractor is capable of performing to federal standards:

- Minimum [3–5] years of experience performing ELD on commercial or institutional low-slope roofing systems
- Demonstrated familiarity with [ASTM E2905 / ASTM D7877] testing protocols
- Ability to produce a written test report with GPS-mapped breach locations, photographic documentation, and an actionable remediation summary
- [Optional] Current certification or training documentation from an ELD equipment manufacturer or industry trade organization
- [If applicable] Security clearance or ability to operate within controlled-access federal facilities

3.3 Deliverables to Require from the ELD Contractor

The deliverables section of your SOW should specify what documentation the ELD contractor must provide upon completion of testing. At minimum, require:

- Pre-testing site assessment report identifying membrane type, surface conditions, and recommended testing method
- Post-testing breach report including the number of breaches detected, GPS-mapped location of each breach on a roof plan, photographic evidence, and recommended remediation actions
- Pass/fail summary for each tested membrane section, with overall roof coverage percentage documented
- Retest confirmation report (if applicable) verifying that all identified breaches were remediated and that the membrane is watertight
- Digital copy of all deliverables in a format suitable for inclusion in the facility’s asset management records or capital planning documentation

Pro Tip: Request that the ELD report be formatted for easy inclusion in your facility’s BUILDER SMS (Sustainment Management System) or equivalent asset database. A well-documented ELD report significantly strengthens your capital improvement request when it’s time to justify a full roof replacement.

Section 4: Sample Specification Language by Project Type

The table below provides sample specification language tailored to common government project scenarios. Modify as appropriate for your agency’s standard format.

Requirement	Sample Specification Language
New Construction / Substantial Completion QA	<i>Prior to substantial completion, the contractor shall provide low-voltage ELD testing of all installed roofing membrane in accordance with ASTM D7877. A breach report with photographic documentation shall be submitted to the contracting officer within [5] business days of testing.</i>
Existing Facility Condition Assessment	<i>The contractor shall perform EFVM-based ELD testing on all accessible low-slope membrane surfaces as part of the facility condition assessment. Testing shall be performed in accordance with ASTM E2905. Results shall be incorporated into the facility condition index (FCI) documentation.</i>
Re-roofing / Membrane Replacement	<i>Upon completion of new membrane installation and prior to final inspection, the contractor shall perform ELD testing in accordance with [ASTM D7877 / ASTM E2905]. Any detected breaches shall be remediated and documented. A final retest confirmation report shall be provided prior to project closeout.</i>
Preventive Maintenance Contract	<i>The contractor shall perform annual ELD testing on all low-slope membrane roof systems covered under this agreement. Testing shall be performed using the EFVM method (ASTM E2905) and a written breach report shall be delivered within [10] business days of each testing event.</i>

Section 5: Questions to Ask a Prospective ELD Contractor

Not all roofing contractors offer ELD as a core competency. When evaluating vendors for a project that includes ELD scope, consider asking:

1. What ELD methods do you perform, and how do you determine which is appropriate for a given project?
 2. Can you provide sample reports from previous federal or institutional projects?
 3. What standards do you follow, and are your technicians trained to those standards?
 4. How do you document and deliver test results, and in what formats?
 5. Do your technicians have experience working within secure or controlled-access federal facilities?
 6. Do you perform both testing and remediation, or is remediation subcontracted?
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Ready to Add ELD to Your Next Project?

Honza Group Inc. specializes in Electronic Leak Detection for government and federal facilities. Our team is experienced with federal procurement requirements, DoD facilities, and GSA-managed properties — and we're available to consult on specification language before your RFP goes out.

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