

Roof Moisture Survey with Impedance Scanner JHA

Worked instructional example

Work and worksite

A trained surveyor maps comparative moisture indications across one released low-slope roof using a nonpenetrating impedance scanner. Roof assembly information, safe access and the scan route are available; any later core sampling or intrusive confirmation will be separately authorized. This fictional learning example describes planned controls; it records no actual inspection or work authorization.

- Partial inspection and maintenance coverage: instrument selection, nonpenetrating survey and documented indications; no core cutting, leak repair or guaranteed water-entry location.
- The selected scanner instructions identify compatible roof materials, assembly limitations and the required reference and range method.
- Protected roof edges and openings, accepted load capacity, suitable weather and an unobstructed route permit the operator to watch both the instrument and footing.

Questions before work

- Is the actual roof build-up suitable for this impedance method, including conductive or metal-faced layers?
- What supports the chosen reference area, and how are the settings and survey locations recorded?
- Who reviews indications and authorizes a separate investigation when readings or conditions are uncertain?

Task Hazard Control

1 Accept roof information and survey limits

Hazard: An incompatible assembly can produce misleading readings; unsafe access can expose the surveyor to a fall.

Control: Review roof build-up and scanner limitations. Verify surfaces are free of rain or dew and any aggregate is dry and uniform as required. Reject incompatible conductive surfaces; verify roof protection and safe routes.

Verification: Survey lead records assembly information, suitability review and the area released for scanning.

Reasoning: Instrument suitability and safe access must both be resolved before a useful survey can begin.

2 Inspect and prepare the scanner

Hazard: Damaged contact components or unstable handles can cause unreliable data or loss of control on the roof.

Control: Inspect the actual scanner and electrode contact surface, assemble its handle securely and verify power, communication and applicable calibration evidence as instructed. Use the accepted roof-delivery method and avoid dragging equipment across vulnerable details.

Verification: Operator records equipment condition and confirms normal function at the protected starting point.

Reasoning: An instrument that powers on may still have damaged contacts affecting its readings.

3 Establish the comparative reference and settings

Hazard: An unsupported reference or unsuitable range can make apparent wet and dry areas misleading.

Control: Use the selected-model reference and range method for the known assembly. Document the basis for the reference area and any uncertainty; obtain additional review when a defensible reference cannot be established.

Verification: Surveyor records settings, reference location and the limitations that apply before starting the scan grid.

Reasoning: Relative readings need a stated comparison basis rather than a generic claim that low means dry.

Complete the work and hand over

4 Scan the planned safe route

Hazard: Attention to the display can distract from roof openings, obstacles or deteriorated areas.

Control: Follow the recorded scan pattern while maintaining safe footing and the required contact method. Stop before repositioning near obstacles, keep clear of protected boundaries and pause for unsafe weather or changing roof conditions.

Verification: Operator checks location and safe route at each marked survey segment and logs areas not accessed.

Reasoning: An unscanned or unsafe area must remain visible in the record rather than becoming an implied clear result.

5 Record and review indications without overclaiming

Hazard: False positives or undocumented setting changes can lead to unnecessary disturbance or missed investigation.

Control: Map comparative indications and retain the relevant settings and observations. Review changes in construction and known material interferences; label uncertain areas for separate confirmation instead of declaring a leak source or a dry roof.

Verification: Survey lead checks the map against settings, assembly boundaries and all inaccessible or uncertain areas.

Reasoning: The map represents instrument indications, not a substitute for the chosen confirmation method.

6 Hand over findings and secure equipment

Hazard: A vague survey report can trigger unplanned intrusive work or leave roof access uncontrolled.

Control: Give the reviewer the route map, settings, indications and limitations. Identify proposed confirmation tasks requiring another release, secure equipment for transport and restore the agreed roof-access controls.

Verification: Lead records the report handoff and the separate decisions still needed for confirmation or repair.

Reasoning: The next action should follow the stated evidence and uncertainty rather than an assumed meter diagnosis.

Pause and reassess

- Pause for wet or unsuitable survey surfaces, incompatible assembly materials, missing roof information, unresolved calibration, damaged contacts or unreliable communication.
- Stop for an unsupported reference, unsafe footing or weather, changed construction or unexpected instrument behavior.
- Core sampling, membrane puncture or repair requires a separate material, service and waterproofing work plan.

Improve the controls

Needs improvement: Work carefully and wear PPE.

More useful: Use the selected-model reference and range method for the known assembly. Document the basis for the reference area and any uncertainty; obtain additional review when a defensible reference cannot be established.

Needs improvement: Check that everything is ready.

More useful: Review roof build-up and scanner limitations. Verify surfaces are free of rain or dew and any aggregate is dry and uniform as required. Reject incompatible conductive surfaces; verify roof protection and safe routes.

Decisions that change the analysis

Does a high scanner reading prove the leak entry point?

It identifies an indication requiring interpretation within the roof assembly and instrument limitations. Document uncertainty and arrange the appropriate separately authorized confirmation; do not report a guaranteed entry point or absolute dry condition from this survey.

What must the crew record for actual use?

Identify the actual equipment and work boundaries, responsible people, applicable criteria, inspection findings and open actions. Resolve changes with affected crews and obtain required project authorization before work.

Training needs

- Demonstrate scanner selection, reference and range setup, mapped survey technique and recognition of incompatible materials or misleading indications.
- Verify safe roof access and train reviewers to distinguish comparative indications, confirmation work and an actual repair decision.

Confirm applicable qualifications and actual training evidence for the people assigned. Related toolbox talks support discussion; they do not establish competence.

References and adaptation

Tramex Dec Scanner user guide: selection, comparative readings and limitations

<https://tramexmeters.com/perch/resources/downloads/user-guides/ds-user-guide.pdf>

OSHA 1926.501 Duty to have fall protection

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.501>

OSHA 1926.21 Safety training and education

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.21>

OSHA 1926.300 Hand and power tools

<https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.300>

References reviewed October 9, 2026. Use actual equipment and product instructions, project design and site requirements. This original draft supplies no fabricated inspection, signature or approval.