

ROOF DECK INTEGRITY ASSESSMENT TOOL



Assessing the integrity and load-bearing capability of a roof deck is a critical step in properly bidding for and safely sending workers onto the roof to remove an old roof system, perform repairs, or install a new system.

- Workers may only work on surfaces that have the “strength and structural integrity” to support them under [OSHA’s requirement found at: 29 CFR 1926.501\(a\)\(2\)](#).

INITIAL STEP: Is the deck...

IMPORTANT: Ensure the estimator, etc., is protected by a personal fall arrest system, for example, when performing inspection.

ACCESSIBLE DECK

- Determine if the underside of the roof deck can be viewed to perform an inspection
- Take photos and/or videos with a time/date stamp. Archive for future reference with any related notes.
- Save communications with customers & building security, granting access.
- Consider using an independent structural engineering company or consultant to perform inspection and provide a written report.
- Variations in the color of the underside of the deck may indicate water intrusion.

INACCESSIBLE DECK

- The underside of the deck cannot be seen.
- Observe signs of water intrusion - wet insulation, water damage, or discoloration to interior materials/surfaces. May be evidence of a weakened roof deck.
- Note specific uses of chemicals by building owners or occupants, exposure to high humidity, or the pH level. Use inquiries to the owner and consider specialized equipment, e.g., thermal imaging cameras, atmospheric testing meters.
- Use core samples to identify deck condition or close-up photos, noting location or condition on the roof plan.
- Note deflection, bounce, soft spots, and movement of roof.

ASSESS ROOF DECK

WOOD DECK

- Plywood delaminated?
- Cupping of dimensional deck lumber?
- Are there rotting deck components or framing members?
- Check plywood for stamped grade and thickness marking. Can it support workers and materials?
- Check dimensions, spacing, and condition of roof framing lumber – trusses, rafters.
- Are the joints of deck lumber supported at the framing members?
- Is framing for skylights, hatches, fire and smoke vents, and similar openings able to support the loads to be imposed?

STEEL DECK

- Visible rust or corrosion?
- Painted deck?
- Galvanized or stainless-steel deck material?
- Determine the type of deck (A, B, F, or N) for replacement purposes.
- Determine the gauge of decking using a micrometer
- Determine a number of structural supports that the deck panels span.
- Note areas where panels fail to span at least three supports.
- Note the precise location of panel ends and laps not over a structural member.
- Determine if laps are sufficiently secured or fastened.

CONCRETE DECK

- Check for depressions in the roof deck.
 - Minor ponding could be from the initial pour or structure settling
 - Larger, more significant depressions require further investigation.
 - A structural engineer may be needed to assess the deck.
- Underside inspection – Note color variations, cracking, spalling or rust stains as signs of possible water intrusion. Report and document this to the owner or the general contractor.
- Deterioration and its extent can be determined by microscopic analysis of the concrete by a qualified lab.

ASSESSMENT ACTIONS: Roof decks that are suspect REQUIRE...

JOB BIDDING

- Results and any considerations for fall protection are communicated to building owners, GCs, and/or roofing contractors and reflected in bids, contracts, JHAs, etc.

FALL-THROUGH HAZARD PROTECTION

- Consideration of interior personnel netting or rooftop anchoring that avoids deck connections, such as crane load line attachments or customized superstructure attachment points.
- Scheduling work when interior spaces are unoccupied, having building occupants and equipment removed, or restricting access for repair and replacement of deck areas.