Aluminum Conductor Checklist

Determine the age of the structure

☐ Pre-1972 – *Recommend Licensed Electrician Evaluation*
☐ 1972 and later

Note: *1972 and later buildings wired in AL conductors require no additional evaluation of the AL conductors but do warrant review of the terminations.*

Pre-1972 structures wired in Aluminum conductors should be evaluated by a licensed electrical contractor.

Post-1972 structures with Aluminum conductors are comprised of the newer AA-8000 series aluminum alloy, are more flexible and reliable, and have been successfully used for over 40 years.

Determine the size of the Aluminum Conductors

☐ Solid Aluminum Conductors (12 or 10 AWG)
☐ Stranded Aluminum Conductors (8 AWG and Larger)*

Note: *Branch Circuits and Feeders made of stranded aluminum are commonly found supplying Ranges, HVAC Equipment, Ovens, Remote Distribution Panels and so on. These applications using Aluminum Conductors should not be a concern for the Home Inspector.*

Pre-1972 AL conductors deployed in smaller branch circuit sizes (12 and 10 AWG) are typically the concern at terminations and warrant additional evaluation from a licensed electrical contractor.

**** Branch Circuits and Feeders 8 AWG and larger***, typically used in HVAC wiring, Range or Oven Wiring, etc. are used with larger devices that are rated for use with aluminum conductors. These circuits are of no more concern than equivalent copper circuits.

Aluminum Termination Review

Terminations Rated for AL Conductors
☐ Yes
☐ No - *Recommend Licensed Electrician Evaluation*

Note: *All Pre-1972 AL wiring should be evaluated at the terminations of devices and utilization equipment to ensure the terminal is rated for use with AL Conductors.*

Verify that the device terminations are rated for use with AL conductors. All device terminals shall be rated CO/ALR if 20 amps or less, and AL/CU if rated higher.

If no markings for use with AL Conductors are found, defer to a licensed electrical contractor for evaluation and/or correction.

Aluminum Conductor Preparation*

Oxide Inhibitor Present
☐ Yes ☐ No
☐ Unable to determine

Note: *These compounds don't have a deleterious effect on the conductor metal, insulation, or equipment when used in accordance with the manufacturer's installation instruction.*

****Recommended: Review the "Standard for installing Aluminum Building Wire and Cable– NECA/AA 104-2012" for additional guidance on AL Conductor Preparation***

While the National Electrical Code [NEC] doesn't require the use of joint compounds or oxide inhibitors, the NEC does state that if such compounds are used they shall be of the type designed for use with AL conductors and that will not adversely affect the conductor, installation, or equipment. [110.14]

Note: *Lack of oxide inhibitor should not create a defect notice unless the electrical equipment calls for such compounds.*

Aluminum Tightening Torque Specification* – Pre-1972 Any torque damage or arcing seen: ☐ Yes ☐ No ***Note:*** *Over- and under-torqued terminations on AL Conductors can lead to premature failure at the termination. Signs of improper torqueing include physical damage observed on the conductors at termination or evidence of arcing at terminal points on devices and utilization equipment.* ****Recommended: Review the "Standard for installing Aluminum Building Wire and Cable – NECA/AA 104-2012" for additional guidance on AL Conductor terminations.***	Pre-1972 single aluminum conductors were less flexible and subject to a wider range of "creep" when terminated incorrectly. All terminations must meet the specifications given in UL Standard 486. ***Note:*** *Informative Annex I in the NEC also provides recommended tightening torque tables extracted from UL 486A-B.*
Aluminum to Copper Connections- (Where applicable) Properly Listed Splice/Transition Device Used ☐ Yes ☐ No-*Recommend Licensed Electrician Evaluation*	All transitions from Aluminum to Copper at splice points, terminals and junctions shall be done with listed devices or components designed and evaluated to eliminate the potential of dissimilar metal contact resulting in a galvanic action which may results in weakening or potential failure of the termination.
Solid Strand Aluminum Conductors ***Note:*** *Typical Branch Circuit Sizes to recommend evaluation are 12 or 10 AWG Solid Aluminum Conductors.* **Multiple Strand Aluminum Conductors** ***Note:*** *In accordance with NEC Section 310.106(C), where installed in raceways, conductors 8 AWG and larger, unless permitted elsewhere in the NEC, shall be stranded. These larger conductors are less of a concern than smaller conductors that were prevalent in the 1960s and 70s.*	***Pre 1972*** – Recommend evaluation of all terminations at devices and utilization equipment or proper torque values, conductor and device damage and overall terminal preparation.

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