



Data Center Lighting

Installation Case Study

About this case study: We are doing a side by side comparison of the Airey-Thompson 51L series Rapid Install luminaires to a basic LED strip light. The comparison is based on a strut installation which is commonly found in data center applications.

Evaluation Categories include:

- Installation time and ease
- Product value & overall quality
- Suitability for mission critical environments

Results:

Installation: We measured a massive 75% labor savings with Airey-Thompsons 51L over the basic LED strip light. The Airey-Thompson fixtures were supplied with all necessary hardware to complete the installation. The other fixture needed wire connectors, bolts, washers, spring nuts and additional wire to connect to the next fixture. If you consider time to procure the needed but not supplied hardware for the strip light fixture your labor savings may be even greater.

Quality: When comparing the two luminaires the quality difference was stark, the strip lights steel housing was riddled with sharp, jagged holes exposing the installer to potential cuts and scrapes where Airey-Thompsons aluminum housing was completely smooth and void of any sharp edges. Both of the strip light fixtures arrived with damaged acrylic diffusers and one had a driver only half way mounted. The Airey-Thompson fixtures are equipped with nearly indestructible polycarbonate diffusers; couple this with extruded aluminum housing and the incidence of trans-portion and installation damage is dramatically reduced.

Hidden Costs: Loss of productivity is among the largest hidden cost, the 60% + labor savings is time that could be used on other aspects of the job or completing the project early or on time. Poor quality fixtures are inexpensive upfront but can have big follow up costs when they are frequently damaged in transportation, installation or leave the factory defective. Costs may include over ordering upfront and (or) a loss of productivity performing double work to order, obtain, schedule and then install replacement materials.

Suitability for mission critical environments: Airey-Thompson luminaires have the quality and performance that is expected for mission critical environments while the basic strip light fixtures fall short.

Fact Sheet	Airey-Thompson 51LH48-10-QC	Lithonia** CLXL48SEFFDL40K
Available Hanger Brackets	Strut, All-Thread and Aux Bar	V wire and T-Bar (N/A in data centers)
Housing Material	Extruded Aluminum	Cold rolled steel
Lens Material	Polycarbonate	Acrylic
Single Tool Installation	Yes	No
Hot Aisle Approved	Yes	No
Quick Connect	Yes	Optional
Through Wiring	Yes	No
Safe to install without Gloves	Yes	No

About the installer: Our installer has 23 years of experience as an electrician and is currently a superintendent for one of the top ten electrical contractors in the country. As superintendent he is regularly tasked with running multi-million dollar projects.

Basic LED strip light installation: We started with two 4' LED strip fixtures, a fixture that our installer is very familiar with. Each luminaire had its own box creating a lot of waste. The very first thing that we noticed while unboxing the fixtures was all of the sharp barbs on the back of the housing as a result of factory punched holes. We also found the same sharp barbs on the couplers, **THIS IS A SAFTY HAZARD!** Upon inspection of our 2 fixtures he found that both of the strips had damaged lenses out of the box. It appears that the damage may have occurred at the factory as the boxes were undamaged. Further inspection lead to one of the drivers not being mounted properly and needed repair from our electrician before it could be installed. This all seems to be a direct result of poor quality control, which creates issues in the field and adds to overall costs.

The strip fixtures had to be completely disassembled to in order to access the wiring compartment and mounting means. The lenses were difficult to remove, and were further damaged during removal. The LED cover had six small screws to remove which were very easy to drop*. The fixtures were not provided with wire nuts, any mounting hardware, or through wiring but they were provided with continuous row couplers. Two clearance holes for 1/4" screws were provided which required the strut nuts to be installed in precisely the right location which is error prone and time consuming. This also makes it difficult for a single person to install an 8' fixture. Labor savings could be dramatically more if comparing 8' luminaires.

We supplied 4 spring nuts, 4 screws and washers, wire nuts, and through wiring (12ga. Black, white and green). The installation was labor intensive and exposed the strip to risk of damage during installation which is not covered by warranty.

Airey-Thompson Installation: This was the second installation, we installed two 4' 51L series rapid install LED fixtures and feed end assembly. Our installer had never worked with 51L rapid install luminaires before, he felt confident that he could improve his fixture install time with a just a little more practice. Both fixtures were in one box so there was **half the waste** and half the time to unpackage. In contrast to the strip light these fixtures were completely smooth and void of any sharp edges. The quality difference was noticeable to our installer immediately.

*(Note from our installer: if he had been up on a boom or a ladder dropping the small screws would have been much more problematic and time consuming)

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Very limited disassembly was required of the 51L fixtures for installation. The diffusers snap off and there are easily removable covers on each end of the fixture that allow access to the through wiring and coupler without removing the LED tray. There were also no screws to remove as opposed to the 6 screws on the strip fixture. The coupler had a single set screw to tighten compared to the 4 screws that needed to be installed on the strip fixture coupler. There were also quick connect multi pin fully insulated plug in connectors on each end of the factory installed through wiring allowing single plug and play installation.

The mounting design of the 51L allows secure support anywhere along the entire length of the fixture without requiring access inside the fixture. This means that precise hanger locations are not required. A single installer can easily install a 4' or 8' fixture. The unique hanger brackets installed rapidly to the strut and the fixtures mounted quickly and securely to the hangers. In addition, the small cross section means **minimal restriction to HVAC air flow**.

The Airey-Thompson fixtures came supplied with all of the needed hardware for this installation. The hangers came with strut nuts and mounting screws, fixtures were provided with through wires and wire connectors. This was a single tool installation only requiring a #2 Phillips head screw driver to tighten coupler set screw and hanger bracket screws.



Strip fixture with sharp barbs and ground screw on the back of the housing present a safety hazard.



Strip light driver not installed properly, mounting screw not engaged with driver



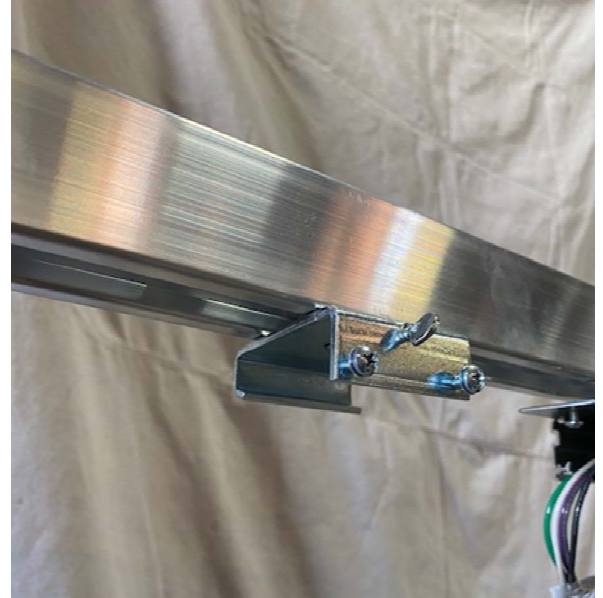
Broken lens on the strip light with exposed LED chips



A crack on the other strip light lens



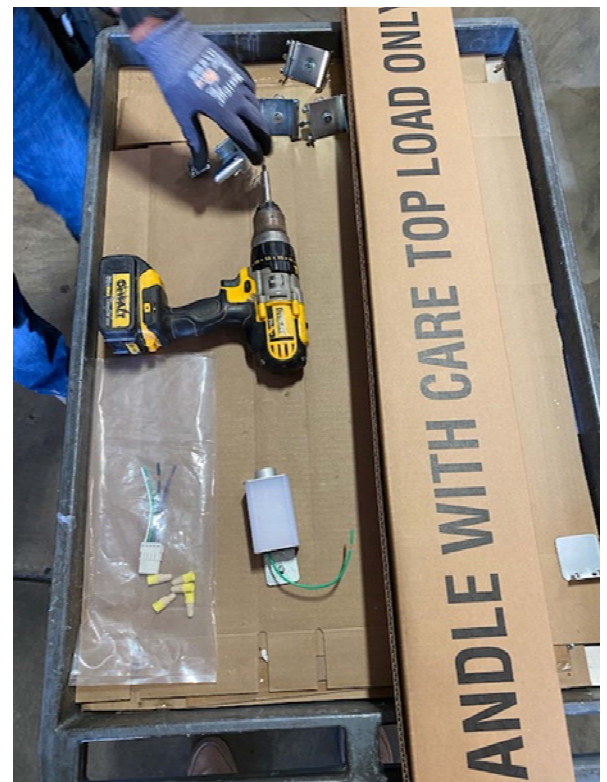
51L Smooth base void of any sharp edges



51L Strut hanger bracket installed



Airey-Thompson fixture securely installed to strut



51L Pre-installation