



ASSESS BEFORE YOU MODIFY...

a UL Listed Assembly
or Other Safety-
Certified Products



A field modification may solve an immediate installation or scheduling issue, but it can also introduce risk to the project.

Manufacturing equipment may hold certification from several Nationally Recognized Testing Laboratory (NRTL) entities, including Technical Inspection Association (TUV), Electrical Testing Laboratories (ETL), Canadian Standards Association (CSA), and others.

Among the most recognized NRTLs is Underwriters Laboratories (UL), whose Listing evaluates the product assembly as a whole. A field change to one component could therefore affect the assembly's original UL Listing.

Before approving a modification to a UL-listed assembly, evaluate whether the proposed change could affect the system's evaluated performance, documentation, configuration, or intended application.

Consider using these three steps for submittal reviews, RFI responses, value-engineering reviews, commissioning reviews, and field-change approvals, as some field modifications can cause commissioning delays, added time spent in redesign, coordination issues, and documentation gaps.



Step 1

Identify the Risk. What is Being Changed?



Electrical Components

Examples include relocating wiring or components, changing cabinet doors, or modifying buswork arrangements.



Physical Construction

Examples include: adding conduit entries, relocating barriers or wiring, or modifying an enclosure.



Configuration / Application

Examples include changing the voltage or electrical configuration, modifying the enclosure that alters its protection requirements, or adding equipment not in the original design.

Step 2

Evaluate How the Change Can Affect NRTL/UL Listings

Even small changes can affect the overall code or safety performance of the entire component.



Electrical Performance

Consider whether the modification affects:

- Clearances around energized parts
- Available fault current
- Fault current path
- Selective coordination or interrupting capacity



Thermal Performance

Consider whether the modification affects:

- Airflow and ventilation
- Heat generation and dissipation
- Component operating temperatures
- Conductor crowding and temperature



Enclosure Integrity

These modifications can affect NEMA/IP rating:

- Drilling, cutting, or added conduit entries
- Ventilation openings
- Barrier, door, cover, or partition changes



Application & Installation

Consider whether the modification affects:

- Voltage or electrical configuration
- Intended equipment application
- Environmental conditions of use
- Added equipment outside the original design



Documentation & Support

Consider whether the modification affects:

- Manufacturer instructions or review
- Applicable equipment documentation
- Engineering or field evaluation needs
- Records supporting the final configuration

Step 3

Ask Critical Questions

Use these questions during design review, submittal review, RFI response, or field-change approval. The answers may indicate a potential void in the UL Listing.

- 1. Has the original equipment manufacturer reviewed the proposed modification?**
The manufacturer can conduct a compliance evaluation and determine whether the change remains within the equipment's evaluated design or requires additional NRTL/UL review.
- 2. Is the modification covered by the manufacturer's installation or modification instructions?**
Following documented instructions helps ensure the change is performed within the conditions under which the equipment was evaluated.
- 3. Does the modification change any component that contributes to the assembly's evaluated performance?**
A component change can affect the performance of the complete assembly, even when the replacement component is individually listed.
- 4. Could the change affect short-circuit current ratings, fault-current paths, or protective-device performance?**
Changes to components or current paths can affect the assembly's ability to safely withstand and interrupt fault conditions.
- 5. Could the change affect electrical clearances, creepage distances, conductor fill, or wiring configuration?**
Changes can reduce required spacing, increase conductor crowding, or alter wiring in ways that affect the assembly's evaluated electrical performance.
- 6. Could the change affect heat generation, airflow, or thermal performance?**
Excess heat or restricted airflow can raise component temperatures beyond the limits of the evaluated design, potentially affecting performance, reliability, and service life.
- 7. Does the change penetrate, alter, or otherwise affect the enclosure?**
Changes to the enclosure can compromise its ability to provide the required protection or maintain the applicable NEMA/IP rating.
- 8. Is the replacement component equivalent to the original component for the intended application?**
An individually listed component may not provide the same performance or compatibility when installed within the complete assembly.
- 9. Will the modification require additional testing, evaluation, or manufacturer authorization?**
Additional evaluation may be needed to determine whether the modified assembly continues to meet applicable safety and performance requirements.
- 10. Can you document the basis for concluding that the modified assembly remains compliant?**
If you cannot document the basis, don't assume the original UL Listing automatically carries forward.

Field modifications affecting electrical performance, enclosure integrity, equipment configuration, or evaluated system characteristics should be reviewed by the original manufacturer and documented prior to acceptance.



Conclusion

The completion of these three steps supports informed approval decisions, helping you determine whether to move forward with the approval documentation, make required changes, or consult with the manufacturer to discuss plans for additional review.

If the same field modification is standard across many of your design projects, consider speaking to the manufacturer about UL-listed configurable systems where the customization is part of the listed design.



IMPORTANT

This guide is intended as an educational reference. It does not determine or confirm UL Listing status. When questions remain, consult the OEM or an appropriately qualified engineering resource.