



CASE STUDY

Custom Medium-Voltage Splice Cabinet – 7 Weeks from PO Acknowledgement to Delivery

OVERVIEW

The summer of 2026 presented a tightly-constrained electro-mechanical marketplace dominated by AI datacenter procurement activity. Bedrock Design and Craft, LLC (BDRCK) successfully navigated the constraints of this environment and delivered a custom-designed medium-voltage splice cabinet solution within seven weeks between purchase order acknowledgement and delivery to client site.

THE CHALLENGE

This project's primary challenge was timely procurement of custom-designed copper bus bars. One supplier quoted 18-22 week lead time – meaning almost half a year.

The client's construction schedule was fixed. The project timeline required negotiating/closing the contract, final assembly design, hardware procurement, manufacturing/assembly, and delivery to site within eight weeks.

The client's original conceptual design proposed a 600V solution for a medium-voltage (13.8kV) application.

HOW WE SOLVED IT

01 We Evaluated the System

BDRCK reviewed the client's technical goals and compared the conceptual solution against National Electric Code (NEC) specifications. Table 495.24 of the NEC defines energized component spacing phase-to-phase and phase-to-ground for several voltage thresholds. The 13.8kV system rating required significantly increasing the spacing between energized components and ground compared to the conceptual design.

02 We Designed the Solution

BDRCK used Autodesk Inventor to prototype several iterations of electrical enclosure arrangements to define a safe, compliant, and manufacturable solution.

03 We Executed and Delivered

BDRCK contracted two separate suppliers to enable the accelerated manufacturing and assembly processes. Design/procurement workstreams proceeded in parallel with working with trusted and experienced local suppliers comfortable with obtaining assembly parts before the final design was complete. The manufacturing process was accelerated through use of a mix of standardized electrical components combined with custom bus bars in a very specific and designed assembly arrangement to ensure a safe solution.

PROJECT SNAPSHOT

CLIENT

Beyond New Horizons, US Air Force Prime Contractor

INDUSTRY

Defense

SERVICES

Electro-Mechanical Design and Contract Manufacturing

TIMELINE

June 2026 – August 2026

CONTRACT TYPE

Purchase Order, Build-to-Print

KEY RESULTS

Three Phase, 13.8kV, 300 amp, One Feed, Two Loads

Designed voltage, amperage, and system configuration requirements

100%

Silver-plated bus bars, minimizing lifetime maintenance costs

7 weeks

PO acknowledgment to delivery

PROJECT IN FOCUS

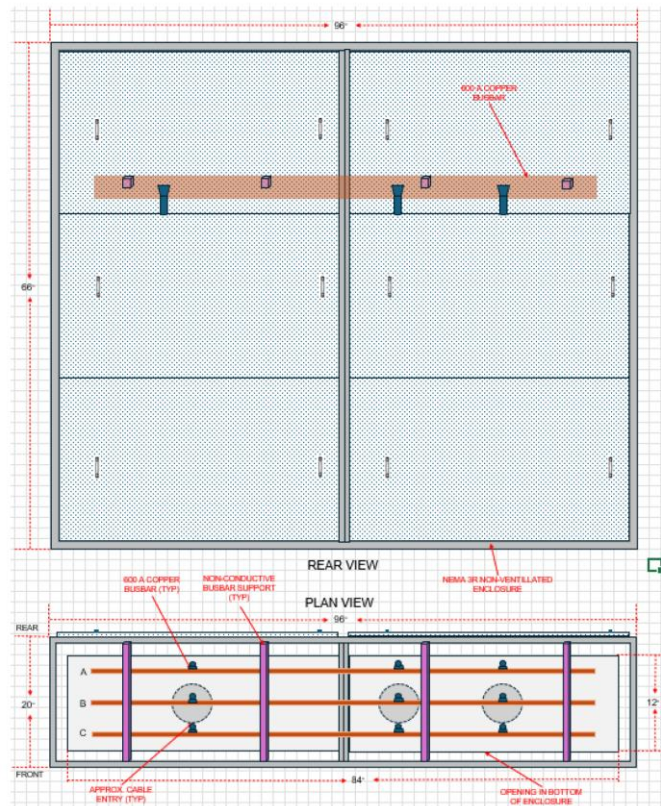


Figure 1- Elevation and Plan Views of Client Conceptual Design

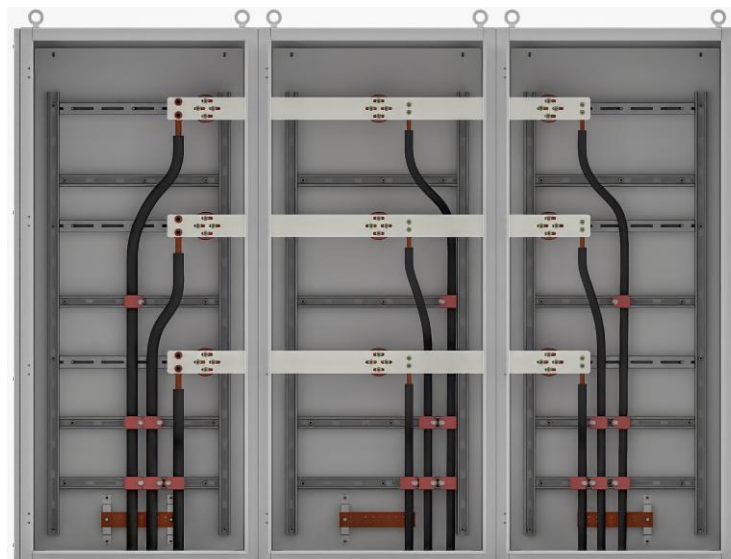


Figure 2 - Front Elevation View of Installed Virtual Prototype 3-Bay Splice Cabinet with Silver-Plated Copper Bus Bars

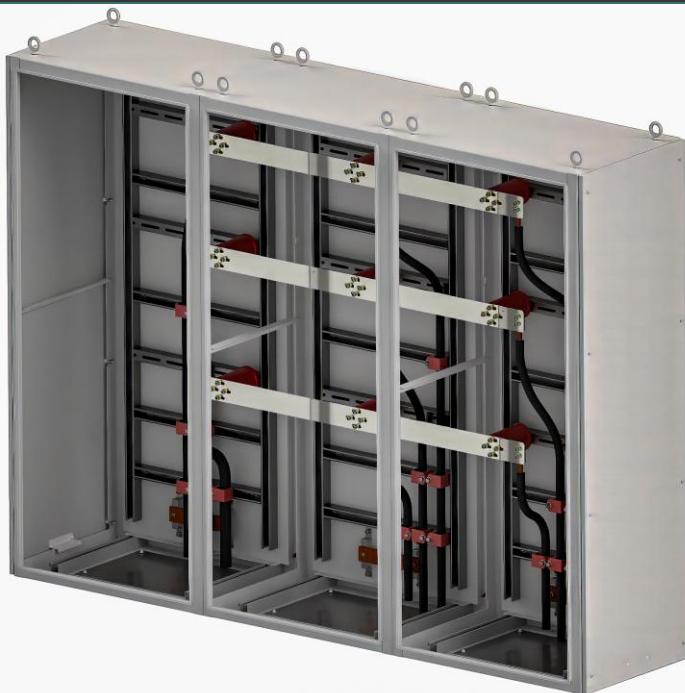


Figure 3 - Isometric View of Virtual Prototype Highlighting Safe Phase-to-Phase and Phase-to-Ground Component Spacing



Figure 4 - Final Checks of Manufactured Splice Cabinet Before Shipment to Site

Senior Expertise Without Headcount Cost

20+ years of electro-mechanical and systems engineering depth — engaged as needed, without the overhead.

Autodesk CAE & PLM Toolset

Enterprise-grade design and data management tools applied to every project.

Concept to Deployment

We own the full lifecycle — from initial design through manufacturing and field delivery.

BEDROCK DESIGN AND CRAFT, LLC

Building Dreams Together

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