How to calculate the labor cost for PLC cabinet wiring

Overview

Pricing Calculation for Custom PLC Control CabinetsIt consists of five major components: hardware cost, labor cost, technical service cost, additional cost.

Key Takeaways

Labor cost for PLC cabinet wiring is calculated by estimating the required man-hours for each task, multiplying by the fully burdened hourly rate, and adding overhead and project-specific adjustments.Step 1: Define the Scope of Work

Start by clearly outlining all tasks involved in wiring the PLC cabinet. Typical work packages include:

• Rough-in wiring and conduit installation

• Mounting and wiring of PLCs, relays, and terminal blocks

• Power supply and grounding connections

• Installation of safety devices (fuses, circuit breakers, E-stop buttons)

• Testing and troubleshooting of circuits Breaking the project into smaller work packages allows for more accurate labor hour allocation and reduces estimation errors .
Step 2: Determine Labor Units

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Assign labor units or estimated hours to each task. Labor units can be based on historical data or industry benchmarks. For example:

• Simple wiring of a light or sensor: 0.5 labor units

• Complex sub-panel installation: 4 labor units

• PLC I/O wiring: 5–10 minutes per point for simple signals, longer for complex devices Use past project data to refine these estimates and account for variations in complexity.
Step 3: Calculate Fully Burdened Hourly Rate

The labor cost per hour should include more than the base wage. Include:

• Base hourly wage

• Payroll taxes and insurance contributions

• Benefits (health, retirement, paid leave)

• Overtime premiums if applicable

• Travel or supervision costs For example, if an electrician's base rate is $40/hour and the labor burden adds 50%, the fully burdened rate is $60/hour .
Step 4: Multiply Hours by Rate

Multiply the estimated man-hours for each task by the fully burdened hourly rate to get the direct labor cost. Sum all tasks to obtain the total labor cost for the PLC cabinet wiring.

Step 5: Add Overhead and Project-Specific Costs

Include indirect costs such as:

• Shop overhead (tools, utilities, administrative support)

• Project-specific equipment or rentals

• Contingency for unexpected complexity A common method is to apply an overhead rate based on direct labor costs or hours. For instance, if overhead is 50% of direct labor, add this to the total labor cost .
Step 6: Review and Adjust

Finally, review the estimate against historical data or similar projects to ensure accuracy. Adjust for:

• Complexity of the PLC system

• Number of I/O points and communication devices

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• Safety and compliance requirements (NFPA 70, UL 60947-4-1, NFPA 79)

• Any special environmental or installation conditions By following these steps, you can produce a realistic and comprehensive labor cost estimate for PLC cabinet wiring that accounts for both direct and indirect costs, ensuring accurate budgeting and competitive project pricing.

Article Content

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