

# SELECTIVE COORDINATION CASE STUDY

Pioneer Power Group was contracted to perform a coordination study for an elementary school. The distribution system for the school contained life safety branches that required selective coordination.

## ► CHALLENGES



Requirements in applicable codes are not black and white and are open to interpretation by the Engineer of Record and the local authority having jurisdiction (AHJ). If equipment that is supplied does not achieve the level of coordination desired by the Engineer of Record, it may prohibit the equipment from being energized. Equipment may need to be replaced resulting in major additional costs and project delays. It is imperative that all overcurrent coordination is approved prior to releasing equipment to manufacturing.



Engineers rarely specify the exact overcurrent protective devices required to achieve the level of selective coordination that is deemed necessary. This pushes code compliance (design) responsibility to equipment manufacturers, who often lack the capability to ensure equipment is installed per code.



At times, the design of the distribution system prohibits the required level of coordination from being achieved. This happens when the design does not meet the specifications provided by the design engineers. If these issues are not addressed and worked out with design engineers prior to equipment release, once again it may prohibit equipment from being energized resulting in rework, increased project costs and delays.

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## ▶ OUR SOLUTION



For this project - in the life-safety branches - the level of selective coordination required was to the 0.1 second time level. To analyze coordination, Pioneer Power Group models the distribution system using SKM PowerTools software. This model matches the design by the Engineer of Record and contains data for all electrical equipment to match the project bills of material. The initial bill of the material provided by the manufacturer was found NOT to selectively coordinate to the 0.1 second time level.



Pioneer Power Group proactively reached out to the distributor and consultant to see if they would prefer to submit the report to the Engineer of Record with the miscoordination noted, or if they would like to try to address the miscoordination in advance of the report submittal. It was decided to submit the report with the miscoordination shown so that the Engineer of Record could make the final decision whether the coordination needed to be addressed or not. The Engineer of Record confirmed that they did want to see the coordination improved.

## ▶ RESULTS



Pioneer Power Group collaborated with the client and equipment manufacturer to find a combination of breakers that would meet the selective coordination requirements from both a coordination and mechanical standpoint. This included ensuring that the proposed breakers could fit in the panelboards that the distributor/manufacturer could supply. Once an appropriate combination of breakers was discovered, the report was resubmitted and the coordination in the branch was approved. The bills of material were revised and provided per the study. By addressing the issue directly and working to find a solution outside of formal report submittals, Pioneer Power Group was able to reduce the time burden on all stakeholders in the project.



In conclusion, achieving selective coordination is not a straightforward process for all installations. Our team takes the time to understand the technical issues, then bring in the appropriate parties in real-time to expedite solving coordination issues. Overall Pioneer Power Group saves time, money, and frustration by proactively identifying, diagnosing, and solving issues with selective coordination and producing a technically accurate report.



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