

IF YOU'VE EVER ASKED YOURSELF "WHY?"

Steel Construction'

Penetration into the Base Metal

I am concerned with a fabrication shop that is using E70C-6M. When inspecting heavy columns, I noticed the

ments shown on the drawings for E70XX. However, I hasten to add the caveat that, as with all welding, the welding parameters (amps, volts, travel speed, preheat, material cleanliness, etc.) must be such that proper fusion is achieved. With your report of "little or no penetration," you should not assume that fusion is being achieved, even though the electrode meets the AWS D1.1 requirements.

There is no inherent problem with the use of this particular classification of electrode, but as is the case with all electrodes, improper procedures and techniques can result in poor quality welds. If there is no fusion, there are major procedural problems that must be addressed. Short-circuiting transfer associated with MAW welding, low currents, small diameter electrodes, and other factors can all lead to conditions wherein fusion is not achieved.

Rather than focusing on the electrode, the concern should be on the welding parameters and quality. Make sure the WPS meets the requirements of AWS D1.1 and that the electrode is operated within the manufacturer's recommended parameters. If there are remaining concerns about the suitability of the welding electrode and the welding procedure parameters being used, it would be appropriate to perform some mechanical testing on welded connections. Simple fillet weld break tests, which are normally used for tack welder qualification, can be used to identify fusion problems. See AWS D1.1 Figure 4.35 for an example of such tests. A good weld will fail through the throat. If fusion problems exist, failure will be along the face of the base metal.

Section Properties

steel interchange

Interchange 101 is a four-level, 1.5-mile-long interchange in the heart of downtown Chicago, Illinois. The project was a complex engineering challenge, requiring the construction of a new interchange structure that would be able to support the weight of the existing structure above it. The new structure was built using a combination of steel and concrete, and was designed to be able to support the weight of the existing structure above it. The project was completed in 2008 and has since become a landmark in Chicago's infrastructure.



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