



Bridge Design Details 11.6 June 2019

Retrofit Hardware

Layout sheets may show location and application of the finished product; however, all parts must be described clearly with dimensions for fabrication. Avoid showing detailed fasteners unless assembly, tool clearance issues or the scale of the detail supports their use. The use of a “drill-point symbol” or hole labeled for the correct size fastener may be adequate. The “Rectangular” and “Polar” Array tools in MicroStation are ideal for placing drilling patterns based on using a symbol from a cell library.

Steel connections are typically bolted or welded. If the project requires the detailing of older steel structures for retrofit, rivets may need to be detailed in the As-Built configuration.

Older steel structures usually have beam and column shapes that are no longer manufactured. The publication “*Iron and Steel Beams 1873 to 1952*” from the “*American Institute of Steel Construction*” (AISC) is a historical reference handbook that will provide the data needed when detailing older steel shapes.

The “*Bridge Inspection Records Information System*” (BIRIS) is a resource to find As-Built and shop plans that can be used to draw existing structures. Shop drawings are the best source of the information to create dimensionally correct drawings for existing steel structures. Furthermore, shop drawings dimension of every piece of steel that was needed to fabricate the bridge component shown on the As-Built.