

Thermal Cutting

We are purchasing a plasma table for our fabrication facility. Is plasma permitted to be used to create holes for bolts and anchor rods?

Thermally cut holes for bolted connections in buildings are explicitly allowed in the AISC *Specification*. See Section M2.5, which states:

“Bolt holes shall comply with the provisions of the RCSC *Specification for Structural Joints Using High-Strength Bolts*, hereafter referred to as the RCSC *Specification*, Section 3.3 except that thermally cut holes are permitted with a surface roughness profile not exceeding 1,000 $\mu\text{in.}$ (25 μm) as defined in ASME B46.1. *Gouges* shall not exceed a depth of $\frac{1}{16}$ in. (2 mm). Water jet cut holes are also permitted.”

The glossary to the *Specification* then defines “thermally cut” as being “cut with gas, plasma or laser” (see page 16.1-liv of the 2010 AISC *Specification*).

So, assuming that the plasma equipment in question can produce holes of the necessary quality, it is permitted—and indeed plasma equipment is becoming extremely common due to the efficiencies they can provide.

You may also find Section M2.2 of the AISC *Specification* to be useful, as it discusses thermal cutting for purposes other than bolt holes (the Commentary to Chapter M is also useful in a general sense). The above applies to buildings and building-like structures.

Note: If you are working on bridges, then thermally cut holes may be prohibited by the owner.

Martin Anderson

Group A & B Bolts

The tables in the 14th Edition of the AISC *Steel Construction Manual* refer to Group A and Group B bolts. What is the definition of Group A and Group B bolts?

This terminology is pursuant to Section J3.1 of the 2010 AISC *Specification*, and the groups correspond to material strength.

Per J3.1, Group A is composed of those materials that have a tensile strength similar to ASTM A325, and includes ASTM A325/A325M, F1852, A354 Grade BC and A449. Group B is composed of those materials that have a tensile strength similar to ASTM A490, and is composed of ASTM A490/A490M, F2280 and A354 Grade BD.

Section J3.1 itself can be found on page 16.1-118, with some relevant Commentary on the matter starting on page 16.1-400.

This change was made to simplify references to those strength groups (for example, when discussing connections it is convenient to distinguish between Group A and Group B as they have different strengths; it similarly simplifies discussions of minimum bolt pretension).

Martin Anderson

Special Inspection

I cannot seem to find the Special Inspection tables for structural steel in the 2012 International Building Code. Where are they located?

Those tables are no longer in the IBC. They are now located as chapters within the relevant AISC standards. For special inspection of structural steel other than seismic lateral force resisting systems, 2012 IBC Section 1705.2.1 states: