

ABSTRACT

This steel material is used for a plate of a column main body to be joined that is directly joined to a pair of beam flanges through welded sections, in a beam-column joint structure having a column which has the column main body, and a beam which has an I-beam for beams having the pair of beam flanges. An amount of S is 0.011 mass% or less, and $vE_{-20(S)}$, $vE_{-20(L,T)}$, $vE_{0(S)}$, and $vE_{0(L,T)}$ satisfy at least one of a combination of Expressions (1A) and (1B), and a combination of Expressions (2A) and (2B). The $vE_{-20(S)}$ is a Charpy absorbed energy of the plate in a plate thickness direction at -20°C based on JIS Z 2242: 2018 and the $vE_{-20(L,T)}$ is a Charpy absorbed energy of the plate in a rolling direction at -20°C based on JIS Z 2242: 2018. The $vE_{0(S)}$ is a Charpy absorbed energy of the plate in a plate thickness direction at 0°C based on JIS Z 2242: 2018, and the $vE_{0(L,T)}$ is a Charpy absorbed energy of the plate in a rolling direction at 0°C based on JIS Z 2242: 2018.

$$vE_{-20(S)} \geq 35\text{J} \dots (1A)$$

$$vE_{-20(L,T)} \geq vE_{-20(S)} \dots (1B)$$

$$vE_{0(S)} \geq 47\text{J} \dots (2A)$$

$$vE_{0(L,T)} \geq vE_{0(S)} \dots (2B)$$

FIG. 1