

The invention concerns steel building components whereof the chemical composition comprises, by weight:  $0.40\% \leq C \leq 0.50\%$ ,  $0.50\% \leq Si \leq 1.50\%$ ,  $0\% \leq Mn \leq 3\%$ ,  $0\% \leq Ni \leq 5\%$ ,  $0\% \leq Cr \leq 4\%$ ,  $0\% \leq Cu \leq 1\%$ ,  $0\% \leq Mo + W / 2 \leq 1.5\%$ ,  $0.0005\% \leq B \leq 0.010\%$ ,  $N = 0.025\%$ ,  $Al \leq 0.9\%$ ,  $Si + Al = 2.0\%$ , optionally at least one element selected among V, Nb, Ta, S and Ca, in contents less than 0.3%, and among Ti and Zr in contents not more than 0.5 %, the rest being iron and impurities resulting from the preparation, the aluminium, boron, titanium and nitrogen contents, expressed in thousandths of %, of said composition further satisfying the following relationship:

$$B \geq \frac{1}{3} \times K + 0.5, \quad (1) \quad \text{with } K = \min(I^*, J^*), \quad I^* = \max(0; 1) \text{ and } J^* = \max(0; J), \quad \text{and } I = \min(N; N - 0.29(Ti - 5)),$$

$$J = \min(N; 0.5(N - 0.52Al + \sqrt{(N - 0.52Al)^2 + 283})), \quad \text{and whereof the structure is bainitic, martensitic or martensitic/bainitic and additionally comprises 3 to 20\% of residual austenite. The invention also concerns a method for making said components.}$$