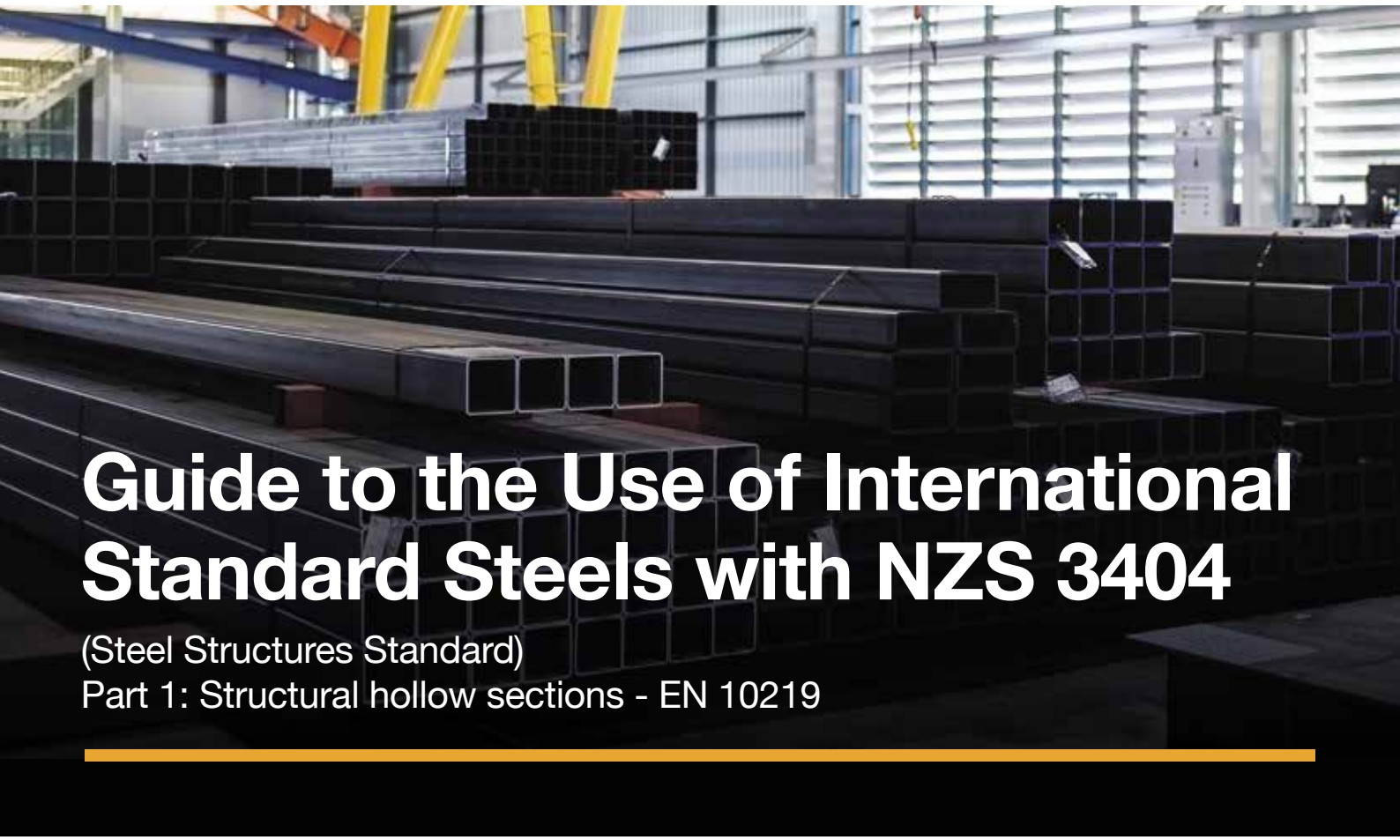
FACT SHEET FS11 OCTOBER 2020



Guide to the Use of International Standard Steels with NZS 3404

(Steel Structures Standard)
Part 1: Structural hollow sections - EN 10219

Introduction

Cold-formed hollow sections are increasingly used as structural elements in multilevel steel-framed construction. Due to the small size of the local market and manufacturer minimum order quantities, it can be challenging and, in some cases, impossible to source large-sized hollow sections manufactured to AS/NZS 1163 (SA/SNZ, 2016a).

The *Guide to the Use of International Standard Steels with NZS 3404 – Part 1: Structural Hollow Sections – EN 10219,* developed by SCNZ and HERA, aims to promote and facilitate the use of a wider range of hollow sections for building and infrastructure projects.

This publication has been prepared to assist all stakeholders engaged in the design, construction, and consenting of structural steel buildings and infrastructure projects: engineers, builders, structural steel contractors, distributors and building consent officials.

For steel products manufactured to EN 10219 (CEN, 2006), the Guide addresses:

- Design;
- Selection to avoid brittle fracture;
- Specification; and
- Welding.

The Guide does this in conjunction with the appropriate standards for steel structures (SNZ, 1997), fabrication (SA/SNZ, 2016b) and welding (SA/SNZ, 2014).

Implementation Tools

To assist engineers efficiently design structural components using EN 10219 sections to the requirements of NZS 3404, SCNZ has worked with the Structural Engineering Society (SESOC) to include a limited range of EN 10219 steel sections in their steel design software, MEMDES. Design section property tables for a limited range of EN 10219 sections appear in the Guide's appendices.

Photo courtesy of John Jones Steel

About EN 10219

EN 10219 is a European standard that specifies requirements for cold-formed circular, square and rectangular hollow sections for structural applications. The product may be manufactured using electric resistance or submerged arc welding processes. Longitudinal- and spiral-welded seams are permitted by the standard.

The strength grades specified in EN 10219 are similar to those in the equivalent AS/NZS standard, *AS/NZS 1163 Cold Formed Structural Hollow Sections.* There is, however, a greater range of sub-grades with minimum Charpy V-notch impact energy requirements.

While EN 10219 steel grades are recognised by the *Steel Structures Standard NZS 3404* as permitted steels, the material selection to avoid brittle fracture provisions do not cover such steels. Neither are they prequalified steels according to the welding standard AS/NZS 1554.1 and, therefore, additional weld procedure qualification requirements apply. In addition, there are differences in the testing and inspection document requirements compared to local practice. The joint SCNZ/HERA publication *Guide to the Use of International Standard Steels with NZS 3404* addresses these shortcomings.

Next Steps

- Visit the SCNZ website to download a copy of the Guide (www.scnz.org)
- Download a copy of latest version of MEMDES from the SESOC website sesoc.org.nz (only available to SESOC members)
- Request a hard copy of the Guide from SCNZ
- Watch out for details of webinars on the Guide

REFERENCES

CEN. (2006). *Cold formed welded structural hollow sections of non-alloy and fine grain steels (EN 10219)*. European Committee for Standardization.
SA/SNZ. (2014). *Structural steel welding - Part 1: Welding of steel structure, incorporating amendments no. 1 & 2.* Standards Australia; Standards New Zealand.
SA/SNZ. (2016a). *Cold-formed structural hollow sections* (AS/NZS 1163). Standards Australia; Standards New Zealand.
SA/SNZ. (2016b). *Structural steelwork - Fabrication and erection* (AS/NZS 5131:2016). Standards Australia; Standards New Zealand.
SNZ. (1997). *Steel structures standard, including amendments: Part 1 and 2* (NZS 3404). Standards New Zealand.

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