

SPAN TABLE DESIGN DATA

In compiling the span tables in this publication all requirements of the relevant standards and codes have been adopted along with established practices for Domestic Housing Structures.

In particular, the following Australian Standards have been applied:

- ◆ AS1170 Parts 1 & 2-1989 SAA Loading Code and AS4055-1992 Wind Loads for Housing.
- ◆ AS4100-1998 Steel Structures.
Other assumptions used in compiling the tables are as follows:
- ◆ All structural sections are 300PLUS® grade steel.
- ◆ Applied loads are evenly distributed along the span of the member with the exception of Strutting Beams and Lintels supporting Strutting Beams where a mid-span point load is assumed.
- ◆ Applied loads for each table are shown above the layout diagram All roof structure tables conform to wind classifications of either category N3 or N5/C2 as shown.
- ◆ Deflection limits for each table are shown above the layout diagram. Maximum deflections are for mid-span.

- ◆ All loads are static and are applied vertically.
- ◆ All members are simply supported single spans except for the continuous span floor bearer table.
- ◆ End support bearing distance for single spans is assumed to be at least that of the width of the member. For continuous spans, internal support bearing is to be at least 2 times the width of the member.
- ◆ Assumed restraint from lateral movement or buckling of the beams varies with application. The assumed conditions are given in the notes below the layout diagrams.
- ◆ The Lintels Supporting Masonry tables were compiled by BHP Research - Melbourne Laboratories before their closure in May 1998.

Applications not complying with the above conditions are outside the scope of this publication and advice should be sought from a structural engineer.

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20 September 2002

Dear Sir

DESIGN CERTIFICATION OF STEEL SECTION SPAN TABLES

The span tables on pages 7 to 21 presented in Edition 3 of "Structural Steel in Housing" have been prepared for the loads and restraint conditions specified in the tables.

The span tables have been calculated in accordance with the principles of structural mechanics using the following standards:

- a) Dead and live loads in accordance with AS1170-1 1989 (Loading Code).
- b) Wind loads in accordance with AS1170-2 1989. The classification from AS4055 Table 1 has been adopted in referring to wind classification.
- c) Member sizing in accordance with AS4100-1998 (Steel Structures)

The gravity loads adopted are accepted in normal practice. The live loads are those specified by AS1170-1.

Wind loads are derived from AS1170-2. The wind pressures are suitable for domestic structures in Regions A and B (AS1170-2) for maximum gust wind speeds of 41m/s in non-cyclonic areas with wind classification up to N3 (AS4055) or 60m/s for high wind areas with wind classification up to N5 or 50m/s for cyclone areas with wind classification C2. The tables do not apply to circumstances where exceptional exposure occurs due to hilly topography or lack of shelter by other buildings.

AS4100 gives suggestions on deflection limits for beams (Appendix B) but are not mandatory. In these tables the deflection limits for bearers and lintels are span/240 or 15mm for G+0.7Q and span/360 or 10mm for 0.7Q. The deflection limits for strutting beams are span/180 or 20mm for G+0.7Q and span/240 or 15mm for 0.7Q. These values have been generally used in the industry for many years. The values originated from the Australian Domestic Construction Manual. Users of the tables should ensure that deflections are suitable for their application. Deflection criteria has not been applied to wind loads.

All members have been sized for the restraint conditions specified in the tables. Users ensure that the constructions in their application achieves that restraint.

Yours faithfully



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STRUCTURAL STEEL IN HOUSING - THIRD EDITION



Structural steel is playing an increasingly important role in traditional and medium density housing with its versatility, strength and competitive price.

OneSteel produces a unique range of steel beams, columns, channels and angles which are suitable for use in domestic housing as floor bearers, joists, roof strutting beams, lintels, piling and other applications.

This booklet has been compiled to assist builders, draftspersons and designers to specify and use OneSteel's range of structural steel. It contains span tables, surface treatment specifications and installation details on the use of OneSteel's structural steel products in various residential building applications.

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