

TRUSS PLATE INSTITUTE OF CANADA (TPIC)

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**DISCLAIMER**

These recommendations are for the design of metal plate connected wood trusses that originate from the collective experience of leading technical personnel in the metal plate connected wood truss industry, but must, due to the nature of the responsibilities involved, be presented only as a guide for the use of a qualified engineer or designer. By publishing this booklet, the Truss Plate Institute of Canada and its member companies do not warrant the recommendations information contained herein as proper under all conditions and expressly disclaim any responsibility for damages arising from the use, application, or reliance on the recommendations and information contained herein. This standard does not preclude the use of materials, assemblies, structures or designs not meeting the criteria herein, when they demonstrate equivalent performance for the intended use to those specified in this standard.

## **FOREWARD**

The purpose of this manual is to present data for design to those familiar with engineering procedures. It does not include information found in standard engineering textbooks which include derivation of formulas. It is not intended that these specifications illustrate all truss configurations or details thereof.

This specification covers materials, both lumber and steel, design procedures for members and joints, including minimum snow loads and minimum dead loads, and evaluation of connector plates.

This specification incorporates the most recent code changes, lumber and design standards and the latest generally accepted engineering procedures and methods. All previous editions of this specification are obsolete.

These specifications do not cover design for the complete structural system of a building. Suitable provisions must be made for adequate supports, cross bracing, wind loading, seismic loading, or other horizontal loading by those responsible for over-all building design.

The design methods contained within this specification are based on sound engineering judgement with specific reference to the National Standard of Canada (CSA 086.1-94) and the National Building Code of Canada 1995. A continuous program of research work is being carried out at various universities and testing laboratories to supplement and enhance this specification.

The purpose of the Truss Plate Institute of Canada is; to serve the needs of manufacturers of truss plates and wood trusses by representation on various committees of recognized organizations dealing with building codes and standards; to establish and promulgate standards for the design, manufacture and quality control of truss plates as may be required; to do all other things to foster and develop truss plate manufacturing and wood truss fabrication industries, consistent with law, and in the mutual interest of members of the organization.

## **HISTORY OF TPIC**

**Year 1971** National Building Code of Canada (1970) introduced new classifications and dimensions for lumber construction.

**June 1971** Several major Canadian truss plate manufacturers convened for the purpose of creating the Truss Plate Institute of Canada.

**May 1972** TPIC was incorporated under Canadian law and its constitution and by-laws adopted.

**July 1973** Uniform testing procedures for metal truss plates were developed.

**April 1974** CMHC and TPIC agreed on maximum span tables for publication in N.B.C.C.

**Oct 1976** TPIC Testing procedures for truss plates were adopted as CSA Standard S347.

**May 1977** CMHC recognized TPIC Design Procedures.

**Jan 1981** 3rd Edition of TPIC Design Procedure for Roof and Floor Trusses published.

**Jan 1988** 4th Edition of TPIC Design Procedure for Roof and Floor Trusses published.

**1988 - 1995** A number of addendums, revisions and additional design procedures were added to TPIC 1988 to keep the industry abreast of the latest technical information.

**Nov 1995** The publication, printing and distribution of the National Building Code of Canada introduces Reliability Based design procedures (Limit States design procedures). With Working Stress design procedures to be eliminated, truss testing at Forintek in Vancouver took place through 1993-1995.

**Fall 1997** TPIC 1996 is published introducing truss design procedures and specifications for light metal plate connected wood trusses for Limit States Design.

## **DESIGN RESPONSIBILITIES**

**Truss Designer/Engineer** - a design professional, individual or organization having responsibility for the design of individual metal plate connected wood truss components, including lateral bracing requirements to prevent buckling of individual truss members due to specified loads.

**Building Designer/Engineer** - a design professional, individual or organization, having responsibility for overall building design. Within the scope of wood trusses, the building designer / engineer, shall specify the following:

- (a) Design loads in accordance with various sections of the National and / or Provincial Building Codes.
- (b) Truss profile and intended support locations.
- (c) Vertical and horizontal deflection limits.
- (d) Moisture environment for intended end use.
- (e) Any special requirements to be considered in the truss design.
- (f) Additional loads from mechanical, electrical units, which may induce extra load to various truss members and their locations.

As this standard does not cover the design for the complete structural system of a building, the building designer / engineer shall provide the following in the design and detailing of the building:

- (a) Truss supports and anchorage accommodating horizontal, vertical or other reaction or displacement.
- (b) Permanent truss bracing to resist wind, seismic and any other lateral forces acting parallel or perpendicular to the plane of trusses.
- (c) Method of connection or anchorage of mechanical, electrical units to various truss members.