



CANADIAN INSTITUTE OF STEEL CONSTRUCTION  
INSTITUT CANADIEN DE LA CONSTRUCTION EN ACIER

## **Connections 2**

Self-Paced Learning Online Course

Course Outline

Overall Introduction

Part 1 - Review

Chapter 1 - Strength of materials

- Definitions
- Centre of gravity
- Moment of a force
- Inertia
- Section modulus
- Bending Strength of Beams
- Bending strength of plates
- Examples

Chapter 2 - Standard Beam End Connections

- Definitions
- Bolted connections
- Welded connections
- Coped Beams
- Examples

Part 2 - Eccentric Connections

Chapter 3 - Bolted and Welded Eccentric Connections

- Definition
- Bolted connections
- Welded connections
- Examples
- Extended Shear Tabs

Chapter 4 - Tension Bolted Connections: Prying Action

- Introduction
- Tension bolted connections
- Tension and shear bolted connections
- Examples



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### Part 2 - Rigid Connections

#### Chapter 5 - Welded beam-column Moment Connections

- Introduction
- Assumptions and approximations
- Example
- Moment Connections to HSS Columns Welded & Bolted

#### Chapter 6 - Bolted Column Moment Connections

- Introduction
- Assumptions and approximations
- Examples

### Part 2 - Braces

#### Chapter 7 - Vertical braces

- Introduction
- Assumptions and approximations
- Uniform Force Method
- Examples

#### Chapter 8 - Horizontal Braces

- Introduction
- Assumptions and approximations
- Examples
- Connections subject to Tension and Shear



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### Part 3 - Members Subject to Axial Loads

#### Chapter 9

- Introduction
- Types of Bracing Members
- HSS Bracing Connections
- Effective Net Area – Shear Lag
- WF Bracing
- Angle Bracing
- WT Bracing
- Axially loaded beam connections
- Extended Shear Tabs
- “Tips” Design and Fabrication

### Part 4 - Member Splices

#### Chapter 10

- Introduction
- Column Splices
- Truss Chord Splices (WF)
- Beam Splices
- HSS Truss Chord Splices
- Examples

### Part 5 - Truss Connections

#### Chapter 11

- Introduction
- Types of Trusses
- Truss to Column Connections
- Design Procedure (CISC)
- HSS Truss End Connections
- Truss Internal Connections
- Examples



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### Part 6 - Special Connections

#### Chapter 12

- WF Base Plate Design
- HSS Base Plate Design
- Beam End Bearing Plates
- Anchor Rod Design
- Base Plate Uplift
- Base Plate Design for Moment
- Pin Connected Tension Members
- Cantilever Beam Stiffening Requirements
- HSS Connection Types
- Stiffened Seat to HSS Column Connection

### Part 7 - General Topics

#### Chapter 13 - Code of Standard Practice

#### Chapter 14 - Architecturally Exposed Structural Steel (AESS)

- Introduction
- The Code of Standard Practice – Appendix I – AESS
- Costs of AESS
- AESS Connections
- AESS Tips

#### Chapter 15 - Fabrication and Erection Costs

- Introduction
- Economical Structural Steel Design
- Fabrication Costs
- Erection Costs