

**CONNECTIONS II – TABLE OF CONTENTS**

Overall Introduction ..... 1

**Part 1 : Review**

Chapter 1 Strength of materials..... 7

- 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 ..... 12

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

**Part II : Eccentric Connections**

Chapter 3 Bolted and Welded Eccentric Connections ..... 31

- Definition
  - Bolted connections
  - Welded connections
- Examples
- Extended Shear Tabs ..... 51b

Chapter 4 Tension Bolted Connections: Prying Action ..... 52

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

**Part II : Rigid Connections**

Chapter 5 : Welded beam-column Moment Connections ..... 65

- Introduction
- Assumptions and approximations
- Example
- Moment Connections to HSS Columns Welded & Bolted) .....84

Chapter 6 : Bolted Column Moment Connections ..... 93

- Introduction
- Assumptions and approximations
- Examples

**Part II : Braces**

Chapter 7 : Vertical braces ..... 101

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

Chapter 8 : Horizontal Braces ..... 116

- Introduction
- Assumptions and approximations
- Examples

Chapter 8 (cont'd)

- Connections subject to Tension and Shear ..... 127

**Part III : Members Subject to Axial Loads ..... 131**

Chapter 9 :

- Introduction
- Types of Bracing Members
- HSS Bracing Connections ..... 137
- Effective Net Area – Shear Lag ..... 152
- WF Bracing ..... 153
- Angle Bracing ..... 165
- WT Bracing ..... 170
- Axially loaded beam connections ..... 171
- Extended Shear Tabs ..... 193
- “Tips” Design and Fabrication ..... 201

**Part IV : Member Splices ..... 203**

Chapter 10 :

- Introduction
- Column Splices ..... 204
- Truss Chord Splices (WF)..... 216
- Beam Splices ..... 221
- HSS Truss Chord Splices..... 225
- Examples

**Part V : Truss Connections ..... 227**

Chapter 11 :

- Introduction
- Types of Trusses..... 229
- Truss to Column Connections ..... 238
  - Design Procedure (CISC) ..... 241
  - HSS Truss End Connections ..... 243
- Truss Internal Connections ..... 245
- Examples

**Part VI : Special Connections ..... 261**

Chapter 12 :

- WF Base Plate Design ..... 262
- HSS Base Plate Design ..... 265
- Beam End Bearing Plates ..... 268
- Anchor Rod Design ..... 272
- Base Plate Uplift ..... 275
- Base Plate Design for Moment ..... 277
- Pin Connected Tension Members ..... 278
- Cantilever Beam Stiffening Requirements ..... 280
- HSS Connection Types ..... 283
- Stiffened Seat to HSS Column Connection ..... 286



**Part VII : General Topics .**

Chapter 13 :

- The Code of Standard Practice ..... 290

**Part VII : General Topics .**

Chapter 14 :

- Architecturally Exposed Structural Steel (AESS) ..... 302
- Introduction
- The Code of Standard Practice – Appendix I – AESS ..... 306
- Costs of AESS ..... 314
- AESS Connections ..... 316
- AESS Tips ..... 317

**Part VII : General Topics .**

Chapter 15 :

- Fabrication and Erection Costs ..... 320
  - Introduction
  - Economical Structural Steel Design ..... 324
  - Fabrication Costs ..... 329
  - Erection Costs ..... 333