

14 ECONOMICAL CONSIDERATIONS

Transverse stiffeners and flange or web doubler plates are extremely labour-intensive details due primarily to the fit-up and welding that is associated with their use. Additionally, issues such as level of restraint, possibility of lamellar tearing and welding sequence must be addressed when transverse stiffeners and/or doubler plates are used. Stiffeners add considerable cost in spite of their disproportionately low material cost. If transverse stiffeners and web doubler plates can be eliminated and an unreinforced column can be used, significant cost savings can often be realized. Additionally, the elimination of column stiffening will simplify (and thereby economise) any connections (rigid or simple) that are made to the weak axis of the column.

Solutions or approaches worth considering include:

- (a) using a column section with thicker flanges and webs to eliminate stiffeners/doubler plates;
- (b) using a deeper beam section to eliminate stiffeners/doubler plates;
- (c) designing for calculated design actions rather than full section moment capacity of the beam;
- (d) use fillet welds rather than full penetration butt welds wherever possible;
- (e) limit the number of thicknesses of stiffeners used. Adopt a single thickness for all applications wherever possible.
- (f) use partial depth stiffeners where possible, thus avoiding having to fit stiffeners between flanges;
- (g) avoid plug welding of web doubler plates to column web by selecting a thickness so that such welding is not required;
- (h) use a single web doubler plate up to 8 or 10 mm thickness, thereafter use two web doubler plates, one each side of the web.
- (i) remove column flange locally and weld in plate of required thickness (as in Figure 7(c)) in order to eliminate stiffeners/doubler plates.



DESIGN GUIDE 11

Welded beam to column moment connections

by

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Welded beam to column moment connections

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CONTENTS

	Page		Page
List of figures	iv	11.2 DESIGN CHECK NO. 10—Local yielding at beam tension flange of column web with doubler plate(s)	31
List of tables	v	11.3 DESIGN CHECK NO. 11—Local yielding at beam compression flange of column web with doubler plate(s)	32
Preface	vi	11.4 DESIGN CHECK NO. 12—Crippling of column web with doubler plate(s) at beam compression flange	34
About the author	vii	11.5 DESIGN CHECK NO. 13—Compression buckling of column web with doubler plate(s)	36
About the contributing author	vii	11.6 DESIGN CHECK NO. 14—Shear on column web panel with doubler plate(s)	38
Acknowledgements	viii	12 RECOMMENDED DESIGN MODEL—COLUMNS WITH TRANSVERSE STIFFENERS	40
1 CONCEPT OF DESIGN GUIDES.....	1	12.1 DESIGN CHECK NO. 15—Column with transverse stiffeners at tension flange	40
1.1 Background	1	12.2 DESIGN CHECK NO. 16—Column with transverse stiffeners at compression flange	42
2 DESCRIPTION OF CONNECTION	2	12.3 DESIGN CHECK NO. 17—Column with transverse diagonal shear stiffeners	44
3 TYPICAL DETAILING OF CONNECTION..	5	13 ADDITIONAL CONSIDERATIONS	46
4 DETAILING CONSIDERATIONS.....	8	14 ECONOMICAL CONSIDERATIONS	47
5 AS 4100 REQUIREMENTS	10	15 DESIGN EXAMPLES	48
6 BASIS OF DESIGN MODEL.....	11	15.1 Design example 1—Beam on one side of column	48
7 CALCULATION OF DESIGN ACTIONS ...	12	15.2 Design example 2—Beams on both sides of column	54
8 RECOMMENDED DESIGN MODEL—SUMMARY OF DESIGN CHECKS.....	16	16 REFERENCES.....	58
9 RECOMMENDED DESIGN MODEL—BEAM WELDS	19	17 DESIGN CAPACITY TABLES	59
9.1 DESIGN CHECK NO. 1—Design capacity of flange welds to beam	19	17.1 Configuration A—Full penetration butt welds to flanges and webs	60
9.2 DESIGN CHECK NO. 2—Design capacity of web welds to beam	20	17.2 Configuration B—Fillet welds required to develop section moment capacity	62
10 RECOMMENDED DESIGN MODEL—UNSTIFFENED COLUMN	22	17.3 Configuration C—Fillet welds to flanges and web	64
10.1 DESIGN CHECK NO. 3—Local bending of column flange at beam tension flange	22	APPENDICES	
10.2 DESIGN CHECK NO. 4—Local yielding of column web at beam tension flange	23	A Limcon software	66
10.3 DESIGN CHECK NO. 5—Local yielding of column web at beam compression flange	25	B ASI Design Guide 9 comment form	73
10.4 DESIGN CHECK NO. 6—Column web crippling at beam compression flange	26		
10.5 DESIGN CHECK NO. 7—Column web compression buckling	28		
10.6 DESIGN CHECK NO. 8—Column web panel in shear	29		
11 RECOMMENDED DESIGN MODEL—COLUMNS WITH DOUBLER PLATES.....	30		
11.1 DESIGN CHECK NO. 9—Local bending of column flange with flange doubler plates at beam tension flange	30		



LIST OF FIGURES

	<i>Page</i>		<i>Page</i>
Figure 1 Typical welded beam to column moment connection	2	Figure 22 Dispersion arrangement used in DESIGN CHECK NO. 7	24
Figure 2 Alternative arrangements for welded beam to column connections	3	Figure 23 Application of c_t term—Column web yielding at beam compression flange	25
Figure 3 Arrangement with shop welded beams and column splices	3	Figure 24 Case I arrangement.....	26
Figure 4 Possible configurations of the welded moment beam to column connection	4	Figure 25 Case II and Case III arrangement...	27
Figure 5 Stub girder connection, fully shop welded beam stub, beam spliced on site.....	5	Figure 26 Examples of web panel shear conditions	29
Figure 6 Field welded moment connection—including erection cleat	5	Figure 27 Column flange doubler plate details at beam tension flange.....	30
Figure 7 Column doubler plate types and column flange replacement alternative.....	6	Figure 28 Column web doubler plate details at beam tension flange.....	31
Figure 8 Column stiffener types.....	7	Figure 29 Column web doubler plate detail at beam compression flange .	32
Figure 9 Stiffener detailing.....	9	Figure 30 Web doubler plate—Welds to column flange.....	33
Figure 10 Design actions on beam at column	12	Figure 31 Case I arrangement.....	34
Figure 11 Calculation of flange forces due to bending moment and axial force—Beam at right angles to column	13	Figure 32 Case II and Case III arrangement...	34
Figure 12 Calculation of forces on column elements where beam is inclined upwards at column	13	Figure 33 Column web doubler plate details at beam compression flange	35
Figure 13 Alternative stress distributions in beam due to design bending moment	14	Figure 34 Column web doubler plate details for compression buckling.....	37
Figure 14 Column and beam dimensions used in design model.....	17	Figure 35 Column web doubler plate details for shear.....	38
Figure 15 Stiff bearing dimension b_{sc} used in design model	17	Figure 36 Tension stiffener arrangement.....	40
Figure 16 Summary of DESIGN CHECK locations on column.....	18	Figure 37 Compression stiffener details	42
Figure 17 Flange weld design actions	19	Figure 38 Diagonal shear stiffener arrangements	45
Figure 18 Web weld design actions.....	21	Figure 39 Transverse stiffener options when beam flanges are offset due to unequal beam depths	46
Figure 19 Application of c_t term—Local bending at tension flange	22	Figure 40 Design example no. 1—Beam on one side of column	48
Figure 20 Application of c_t term—Column web yielding at beam tension flange	23	Figure 41 Shear stiffener geometry	52
Figure 21 Angle of dispersion used in DESIGN CHECK NO. 4 and NO. 5	24	Figure 42 Design example no. 1—Beam on one side of column—Alternative detailing to Figure 40.....	53
		Figure 43 Design example no. 2—Beams on both sides of column	54
		Figure 44 Stress distribution in beam #2 due to 180 kNm	55



LIST OF TABLES

		<i>Page</i>			<i>Page</i>
Table 1	Equations to be applied for different configurations and connection elements.....	15	Table 6	Welded beams Grade 300— Weld configurations to achieve design section moment capacity ϕM_s	63
Table 2	Stiffener material design strengths	41	Table 7	Universal beams Grade 300— Design moment capacity of welded connection with 10 mm flange fillet welds and 8 mm web welds	64
Table 3	Universal beams Grade 300— Design section moment and web capacities	60	Table 8	Universal beams Grade 300— Design moment capacity of welded connection with 8 mm flange fillet welds and 6 mm web welds	65
Table 4	Welded beams Grade 300— Design section moment and web capacities	61			
Table 5	Universal beams Grade 300— Weld configurations to achieve design section moment capacity ϕM_s	62			

