

# CONTENTS

	Page
FOREWORD . . . . .	1
1 INTRODUCTION . . . . .	3
1.1 Scope . . . . .	3
1.2 Definitions . . . . .	3
1.3 Abbreviations . . . . .	3
1.4 Units . . . . .	4
1.5 Glossary of Technical Terms . . . . .	4
1.6 References . . . . .	5
2 QUALITY ASSURANCE AND SAFETY . . . . .	7
2.1 Quality Assurance . . . . .	7
2.2 Safety and Environment . . . . .	7
3 MATERIALS . . . . .	9
3.1 Weldable Structural Materials . . . . .	9
3.2 Welding Consumables . . . . .	9
3.3 Miscellaneous Materials—Bolts, Nuts and Washers . . . . .	9
3.4 Materials Substitution . . . . .	9
3.5 Materials Handling—Receipt, Storage and Issue . . . . .	9
4 QUALIFICATION OF WELDING PROCEDURES AND PERSONNEL . . . . .	11
4.1 General Requirements . . . . .	11
4.2 Welding Procedure Qualification Tests . . . . .	11
4.3 Qualification of Welding Personnel . . . . .	11
5 CONSTRUCTION . . . . .	13
5.1 General Requirements . . . . .	13
5.2 Preparation and Assembly . . . . .	13
5.2.1 Handling Procedures . . . . .	13
5.2.2 Design of Welded Connections . . . . .	13
5.2.3 Forming and Straightening . . . . .	13
5.2.4 Edge Preparation . . . . .	13
5.2.5 Alignment and Fit-up of Welded Joints . . . . .	13
5.2.6 Rat-holes, Penetrations and Cut-outs . . . . .	14
5.3 Control of Production Welding . . . . .	14
5.3.1 Welding Environment . . . . .	14
5.3.2 Welding Consumables and Equipment . . . . .	14
5.3.3 Preheat and Interpass Temperature Requirements . . . . .	14
5.3.4 Temporary and Non-structural Attachments, Ancillaries and Miscellaneous Steelwork . . . . .	15
5.3.5 Weld Execution . . . . .	15
5.3.6 Weld Interruptions . . . . .	15
5.3.7 Weld Repairs . . . . .	15
5.3.8 Weld Profile, Surface Finish and Clean-up . . . . .	15
5.3.9 Production Controls . . . . .	15
5.4 Post-Weld Heat Treatment . . . . .	16
5.5 Bolted Connections . . . . .	16

6	FABRICATION TOLERANCES . . . . .	17
6.1	General . . . . .	17
6.2	Structural Tolerances . . . . .	17
6.2.1	Handrails . . . . .	17
6.2.2	Deck Plating, Walkways, Stairways and Landings . . . . .	17
6.2.3	Stiffened Plate Panels . . . . .	18
6.2.4	Openings / Penetrations . . . . .	18
7	INSPECTION AND NON-DESTRUCTIVE TESTING . . . . .	21
7.1	General . . . . .	21
7.2	Inspection and NDT . . . . .	21
7.2.1	Extent of Inspection and NDT . . . . .	21
7.2.2	Timing of Final Inspection and NDT . . . . .	22
7.3	Qualification of Inspection and NDT Personnel . . . . .	22
7.4	Non-Destructive Testing Techniques . . . . .	23
7.5	Acceptance Criteria for Flaws . . . . .	23
7.5.1	General . . . . .	23
7.5.2	Visual Acceptance . . . . .	23
7.5.3	Ultrasonic Acceptance . . . . .	23
7.5.4	Radiographic Acceptance . . . . .	23
7.5.5	Magnetic Particle Examination Acceptance . . . . .	24
8	TABLES . . . . .	25
1.	RECOMMENDED INSPECTION/NDT CATEGORIES . . . . .	25
2.	VISUAL INSPECTION ACCEPTANCE CRITERIA . . . . .	25
3.	REQUIREMENTS FOR EXTENT AND TYPE OF INSPECTION AND NDT . . . . .	26
4.	ULTRASONIC TESTING ACCEPTANCE CRITERIA . . . . .	27
	REFERENCES . . . . .	29
	EEMUA PUBLICATIONS—SUMMARY LIST . . . . .	31