

TABLE OF CONTENTS

PREFACE.....	iii
EXECUTIVE SUMMARY	vii
PART 1:	
1. SUMMARY OF BUILDING ANALYSIS STUDIES Gregory Deierlein	1-1
2. EARTHQUAKE RESPONSE OF STRENGTHENED STEEL SPECIAL MOMENT RESISTING FRAMES Gary C. Hart, Sampson C. Huang, Roy F. Lobo, Matthew Van Winkle, Anurag Jain	2-1
3. ANALYSIS OF A DAMAGED FOUR-STORY BUILDING AND AN UNDAMAGED TWO-STORY BUILDING Helmut Krawinkler, Ali Alali, Charles C. Thiel, John M. Dunlea.....	3-1
4. ANALYSIS OF A SIX STORY STEEL MOMENT FRAME BUILDING IN SANTA MONICA Michael D. Engelhardt, Keedong Kim, Thomas A. Sabol, Lawrence Ho Hae-In Kim, Joseph Uzarski, Abunnasr Husain.....	4-1
APPENDIX A: TWO-DIMENSIONAL ELASTIC ANALYSIS.....	4-67
APPENDIX B: THREE-DIMENSIONAL ELASTIC ANALYSIS.....	4-87
APPENDIX C: TWO-DIMENSIONAL INELASTIC ANALYSIS.....	4-119
5. ELASTIC AND INELASTIC ANALYSIS FOR WELD FAILURE PREDICTION OF TWO ADJACENT STEEL BUILDINGS Gary C. Hart, Sampson C. Huang, Roy F. Lobo, Joe Stewart	5-1
APPENDIX: FRAME ELEVATIONS FOR BUILDINGS CONSIDERED	5-43
PART 2:	
6. EVALUATION OF SEISMIC PERFORMANCE OF AN 11-STORY STEEL MOMENT FRAME BUILDING DURING THE 1994 NORTHRIDGE EARTHQUAKE Farzad Naeim, Roger DiJulio, Jr., Kalman Benuska, Andrei M. Reinhorn, Chen Li.....	6-1
APPENDIX.....	6-105
7. PERFORMANCE OF A 13-STORY STEEL MOMENT-RESISTING FRAME DAMAGED IN THE 1994 NORTHRIDGE EARTHQUAKE Chia-Ming Uang, Qi-Song Yu, Ali Sadre, David Bonowitz, Nabih Youssef.....	7-1
8. SEISMIC RESPONSE OF HAUNCH REPAIRED STEEL SMRFs: ANALYTICAL MODELING AND A CASE STUDY Cheol-Ho Lee, Chia-Ming Uang	8-1
9. ANALYSIS OF A 16-STORY STEEL FRAME BUILDING AT SITE 5 FOR THE NORTHRIDGE EARTHQUAKE John Kariotis, T. J. Eimani.....	9-1
10. ANALYSIS OF A 17-STORY STEEL MOMENT FRAME BUILDING DAMAGED BY THE NORTHRIDGE EARTHQUAKE	

Terrence F. Paret, Kent K. Sasaki.....	10-1
11. NONLINEAR STATIC AND DYNAMIC ANALYSIS OF A 17-STORY BUILDING WITH FEAP-STRUC Filip C. Filippou	11-1
12. DYNAMIC RESPONSE ANALYSES OF THE 17-STORY CANOGA BUILDING James C. Anderson, Filip C. Filippou.....	12-1
13. AMBIENT VIBRATION SURVEYS OF THREE STEEL-FRAME BUILDINGS STRONGLY SHAKEN BY THE 1994 NORTHRIDGE EARTHQUAKE James L. Beck, B. Scott May, David C. Polidori, Michael W. Vanik.....	13-1
APPENDIX A: SAC PROGRAM TO REDUCE THE EARTHQUAKE HAZARDS OF STEEL MOMENT FRAME STRUCTURES, AN OVERVIEW	A-1

TABLE OF CONTENTS

PREFACE.....	iii
EXECUTIVE SUMMARY	vii
PART 1:	
1. SUMMARY OF BUILDING ANALYSIS STUDIES Gregory Deierlein	1-1
2. EARTHQUAKE RESPONSE OF STRENGTHENED STEEL SPECIAL MOMENT RESISTING FRAMES Gary C. Hart, Sampson C. Huang, Roy F. Lobo, Matthew Van Winkle, Anurag Jain	2-1
3. ANALYSIS OF A DAMAGED FOUR-STORY BUILDING AND AN UNDAMAGED TWO-STORY BUILDING Helmut Krawinkler, Ali Alali, Charles C. Thiel, John M. Dunlea.....	3-1
4. ANALYSIS OF A SIX STORY STEEL MOMENT FRAME BUILDING IN SANTA MONICA Michael D. Engelhardt, Keedong Kim, Thomas A. Sabol, Lawrence Ho Hae-In Kim, Joseph Uzarski, Abunnasr Husain.....	4-1
APPENDIX A: TWO-DIMENSIONAL ELASTIC ANALYSIS.....	4-67
APPENDIX B: THREE-DIMENSIONAL ELASTIC ANALYSIS.....	4-87
APPENDIX C: TWO-DIMENSIONAL INELASTIC ANALYSIS.....	4-119
5. ELASTIC AND INELASTIC ANALYSIS FOR WELD FAILURE PREDICTION OF TWO ADJACENT STEEL BUILDINGS Gary C. Hart, Sampson C. Huang, Roy F. Lobo, Joe Stewart	5-1
APPENDIX: FRAME ELEVATIONS FOR BUILDINGS CONSIDERED	5-43
PART 2:	
6. EVALUATION OF SEISMIC PERFORMANCE OF AN 11-STORY STEEL MOMENT FRAME BUILDING DURING THE 1994 NORTHRIDGE EARTHQUAKE Farzad Naeim, Roger DiJulio, Jr., Kalman Benuska, Andrei M. Reinhorn, Chen Li.....	6-1
APPENDIX.....	6-105
7. PERFORMANCE OF A 13-STORY STEEL MOMENT-RESISTING FRAME DAMAGED IN THE 1994 NORTHRIDGE EARTHQUAKE Chia-Ming Uang, Qi-Song Yu, Ali Sadre, David Bonowitz, Nabih Youssef.....	7-1
8. SEISMIC RESPONSE OF HAUNCH REPAIRED STEEL SMRFs: ANALYTICAL MODELING AND A CASE STUDY Cheol-Ho Lee, Chia-Ming Uang	8-1
9. ANALYSIS OF A 16-STORY STEEL FRAME BUILDING AT SITE 5 FOR THE NORTHRIDGE EARTHQUAKE John Kariotis, T. J. Eimani.....	9-1
10. ANALYSIS OF A 17-STORY STEEL MOMENT FRAME BUILDING DAMAGED BY THE NORTHRIDGE EARTHQUAKE	

Terrence F. Paret, Kent K. Sasaki.....	10-1
11. NONLINEAR STATIC AND DYNAMIC ANALYSIS OF A 17-STORY BUILDING WITH FEAP-STRUC Filip C. Filippou	11-1
12. DYNAMIC RESPONSE ANALYSES OF THE 17-STORY CANOGA BUILDING James C. Anderson, Filip C. Filippou.....	12-1
13. AMBIENT VIBRATION SURVEYS OF THREE STEEL-FRAME BUILDINGS STRONGLY SHAKEN BY THE 1994 NORTHRIDGE EARTHQUAKE James L. Beck, B. Scott May, David C. Polidori, Michael W. Vanik.....	13-1
APPENDIX A: SAC PROGRAM TO REDUCE THE EARTHQUAKE HAZARDS OF STEEL MOMENT FRAME STRUCTURES, AN OVERVIEW	A-1