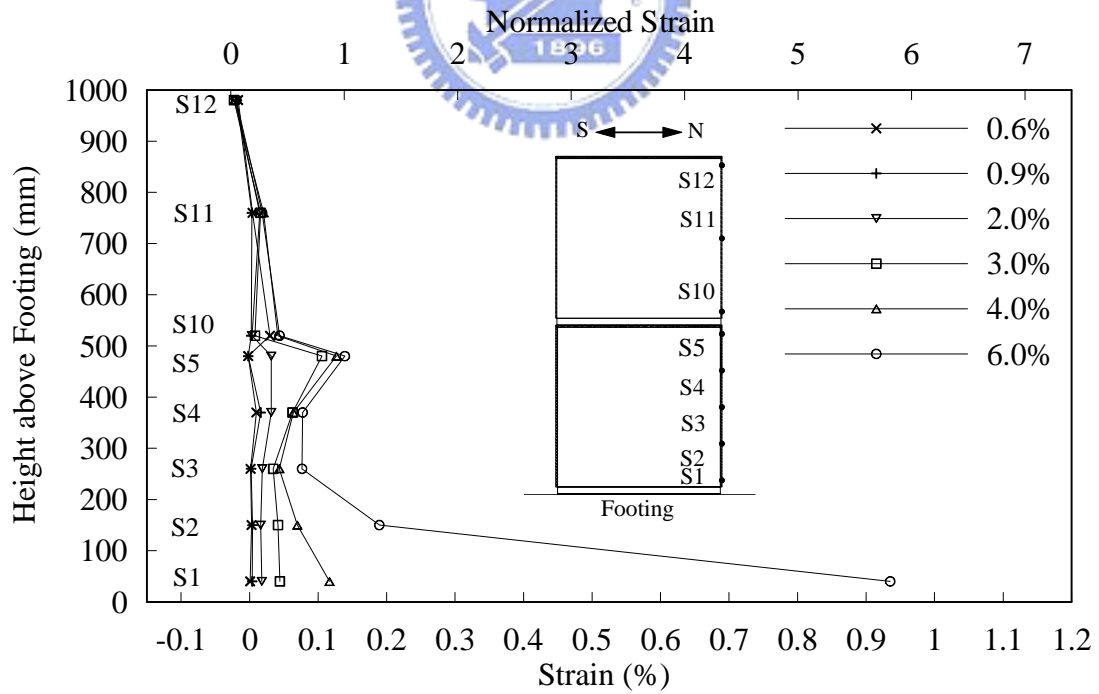
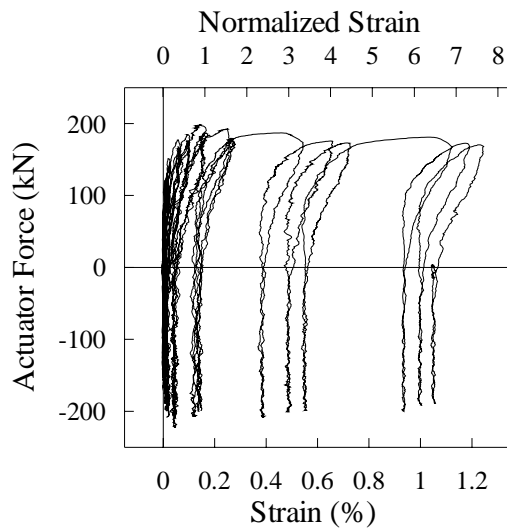


(a) Push Direction

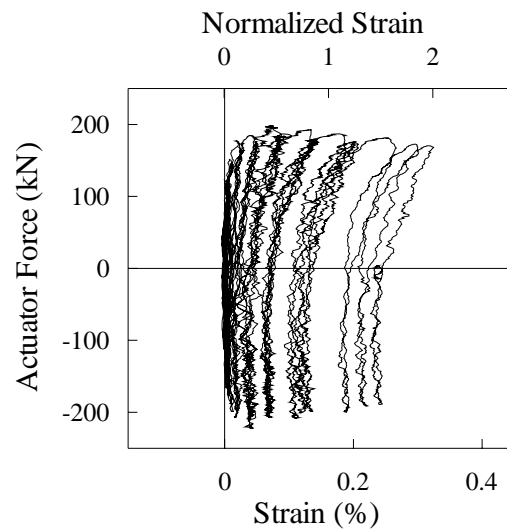


(b) Pull Direction

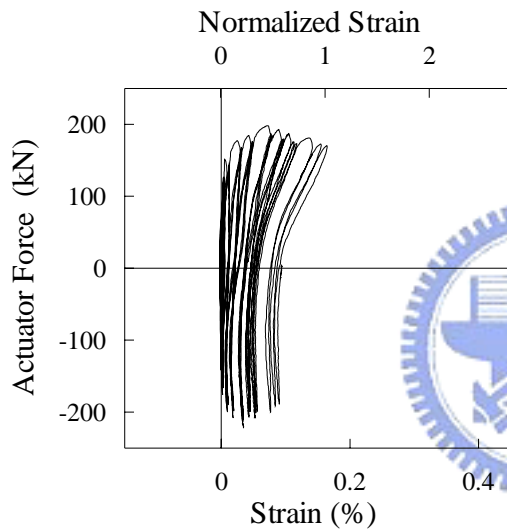
圖 3.42 試體 SP2 鋼管北側環向應變隨柱高變化圖



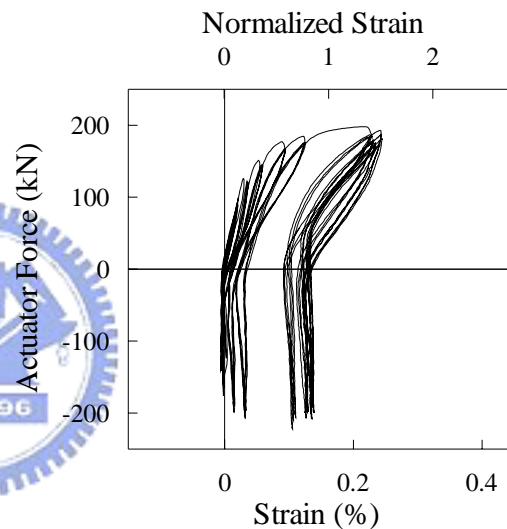
(a) Strain Gauge S1



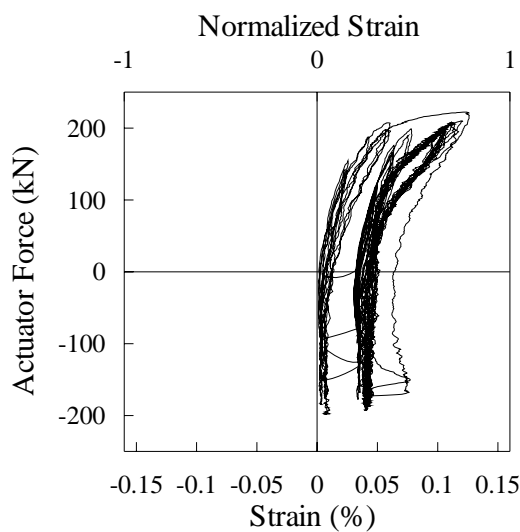
(b) Strain Gauge S2



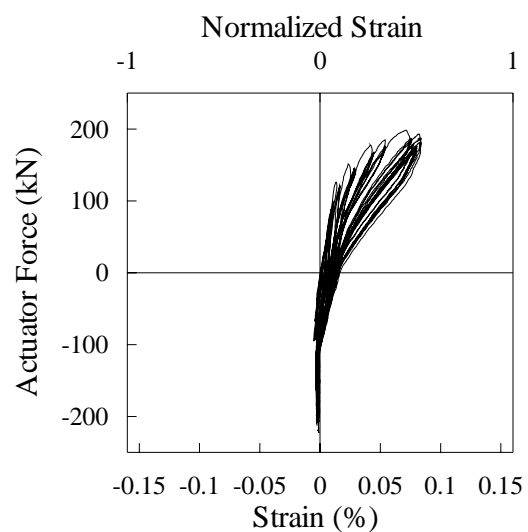
(c) Strain Gauge S3



(d) Strain Gauge S5



(e) Strain Gauge S10



(f) Strain Gauge S12

圖 3.43 試體 SP2 鋼管北側環向應變與側向力歷時

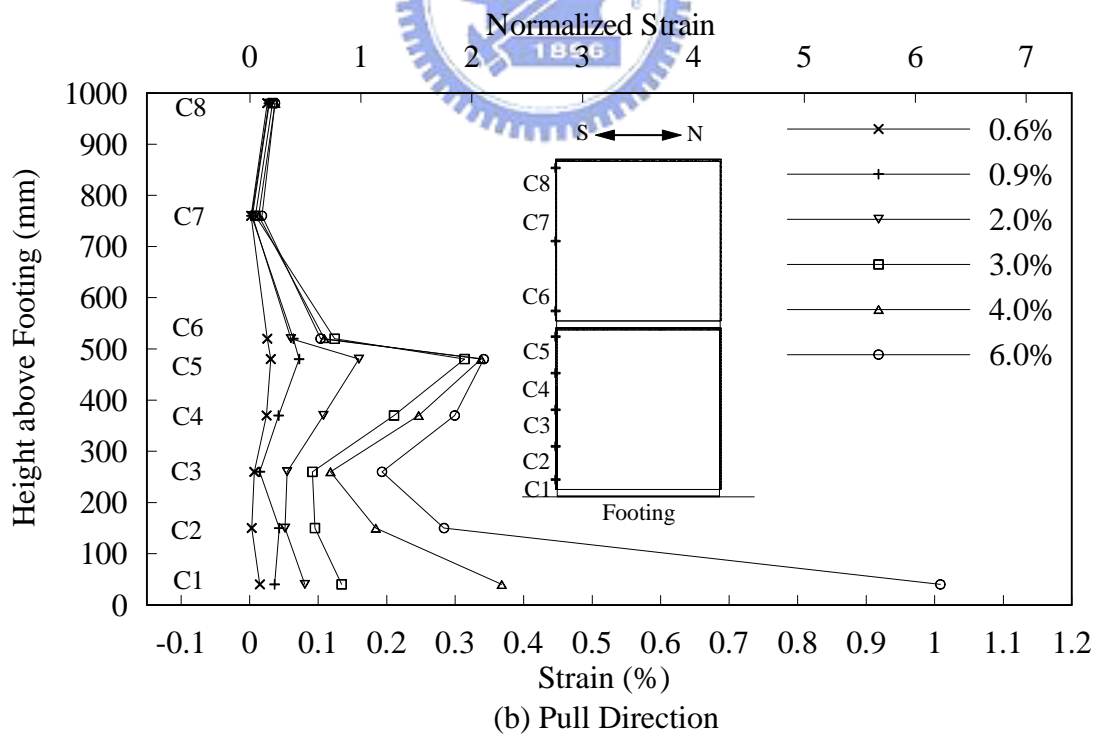
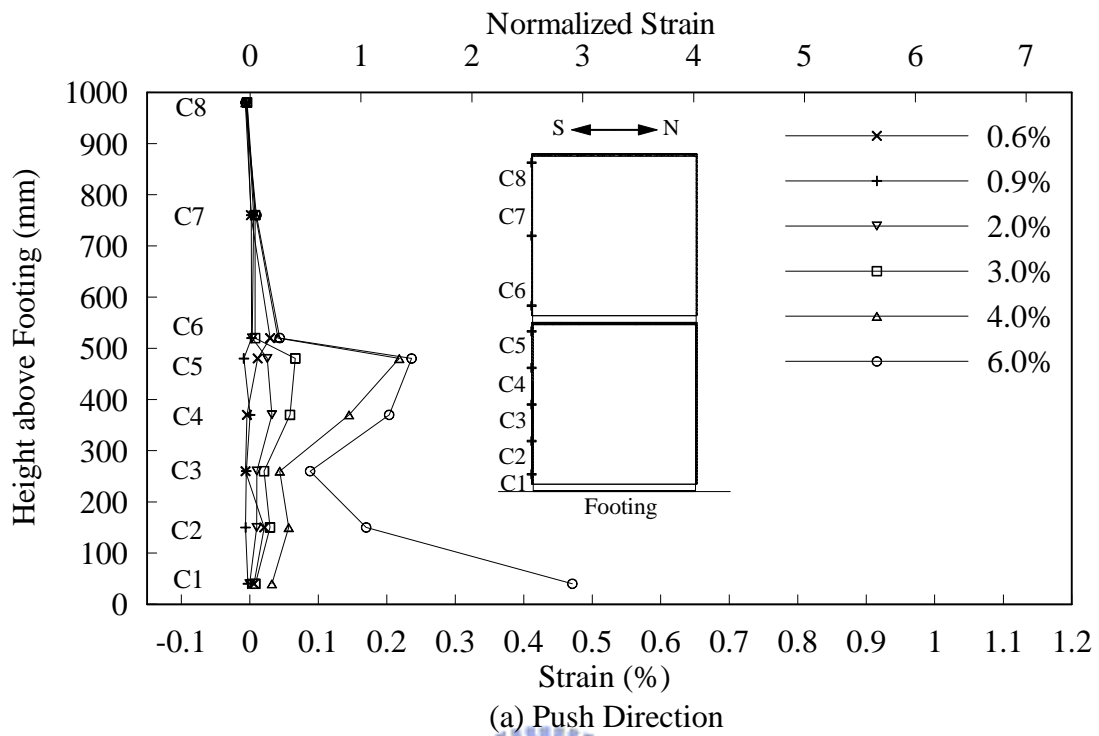


圖 3.44 試體 SP2 鋼管南側環向應變隨柱高變化圖

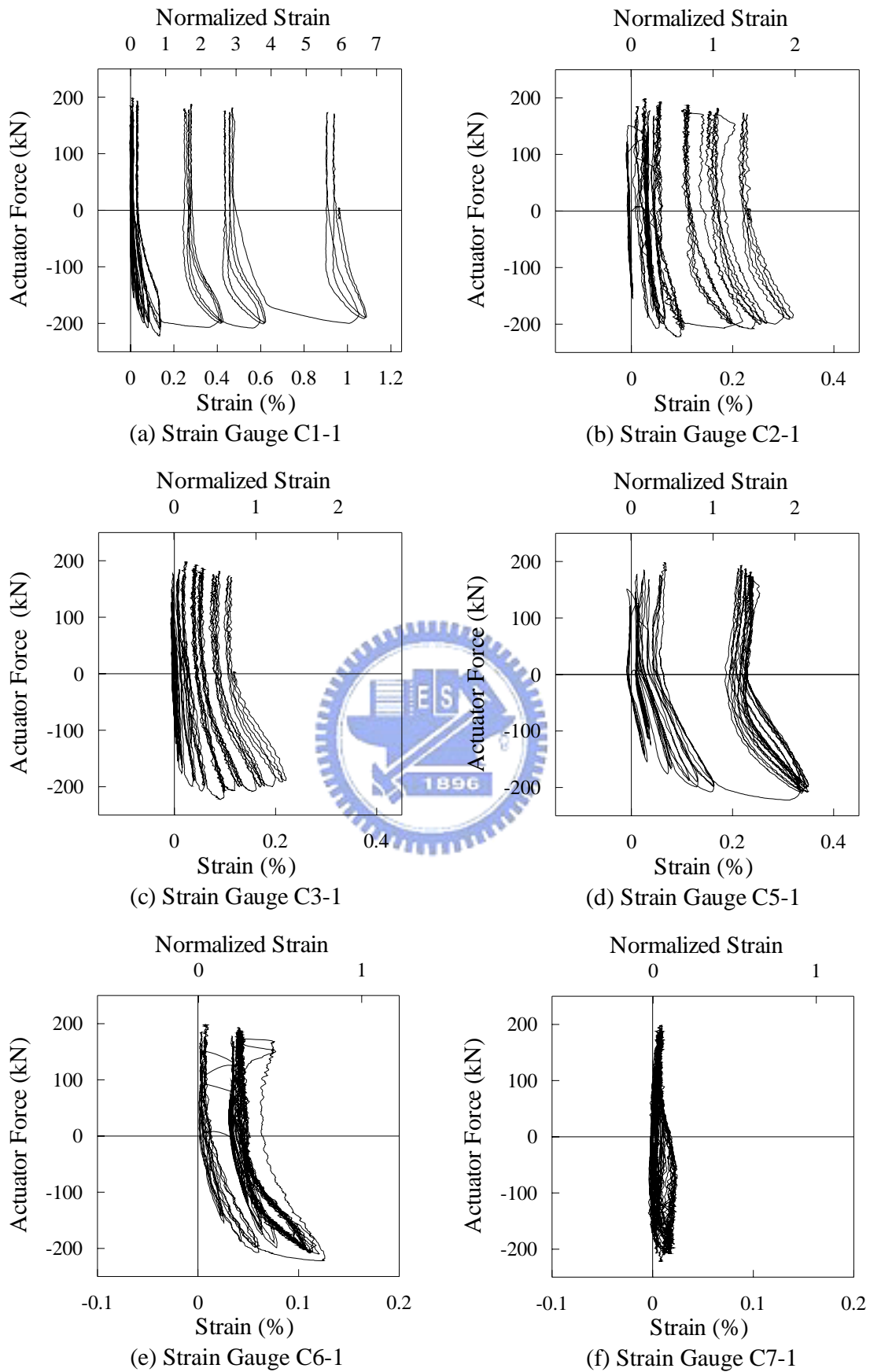


圖 3.45 試體 SP2 鋼管南側環向應變與側向力歷時

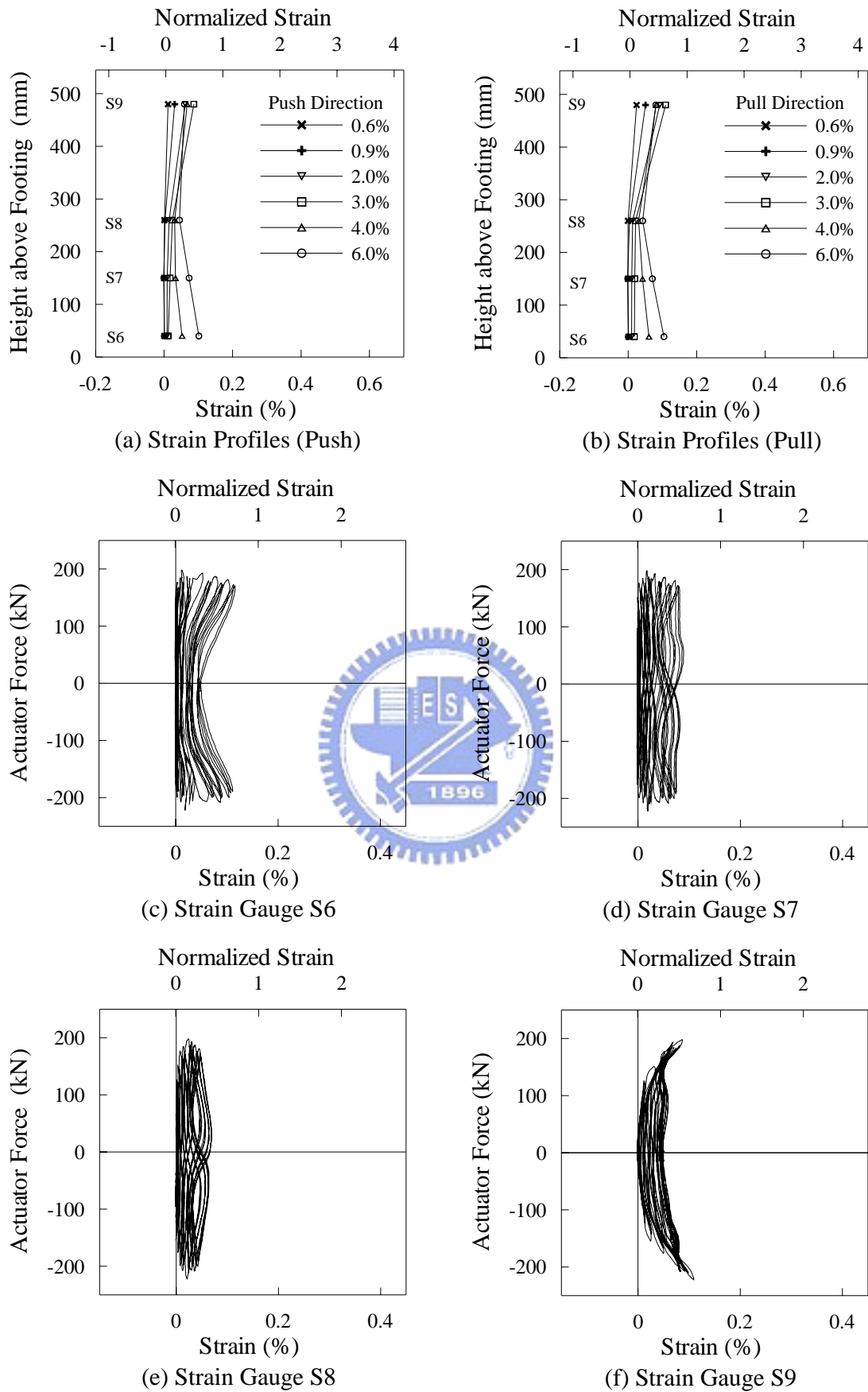


圖 3.46 試體 SP2 鋼管西側環向應變圖

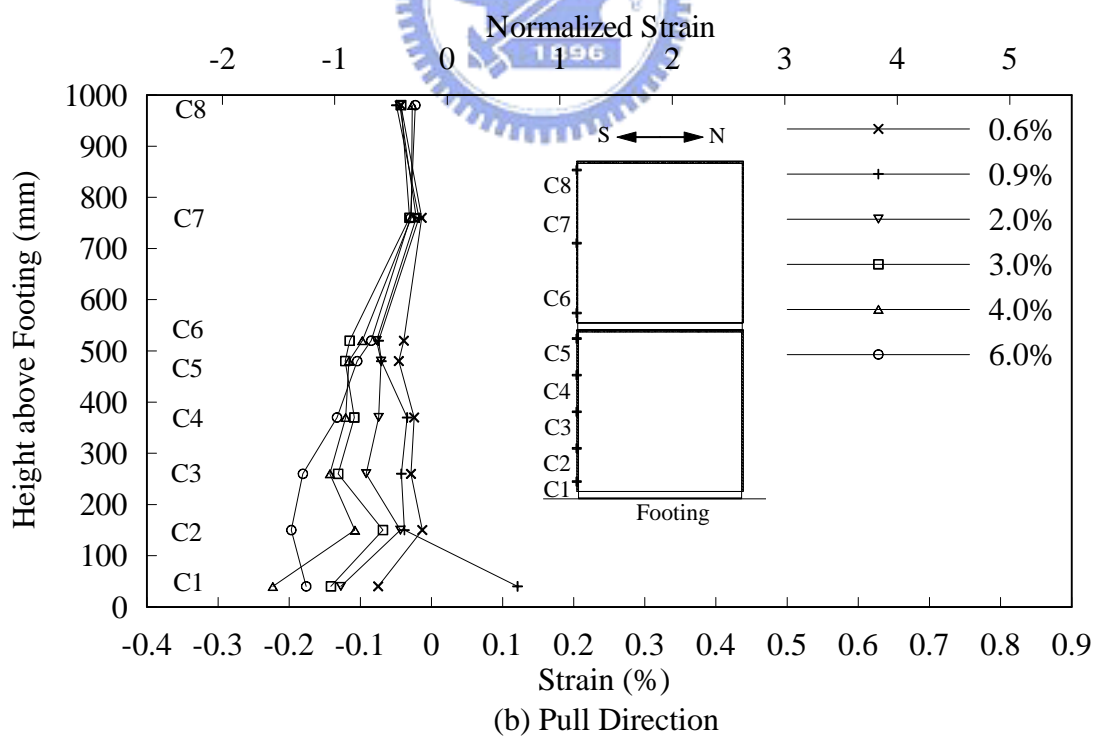
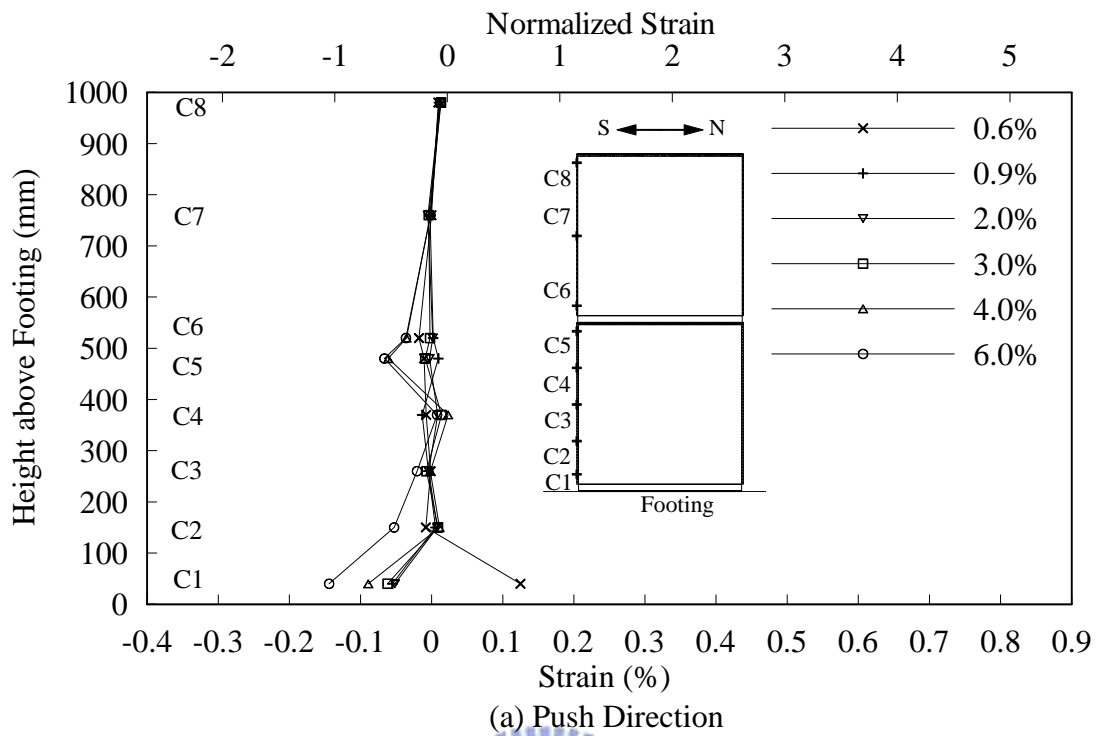


圖 3.47 試體 SP2 鋼管南側縱向應變隨柱高度變化圖

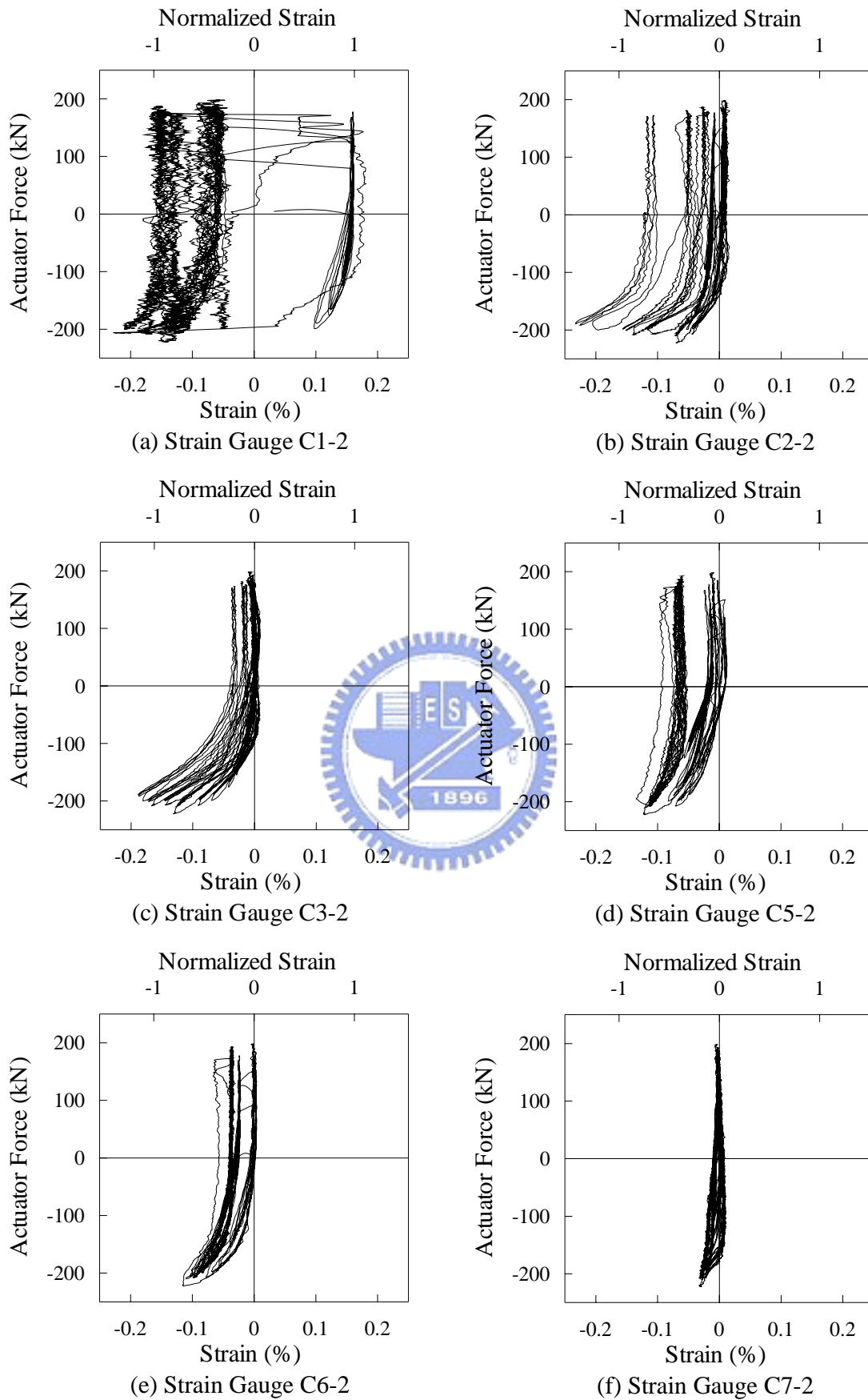
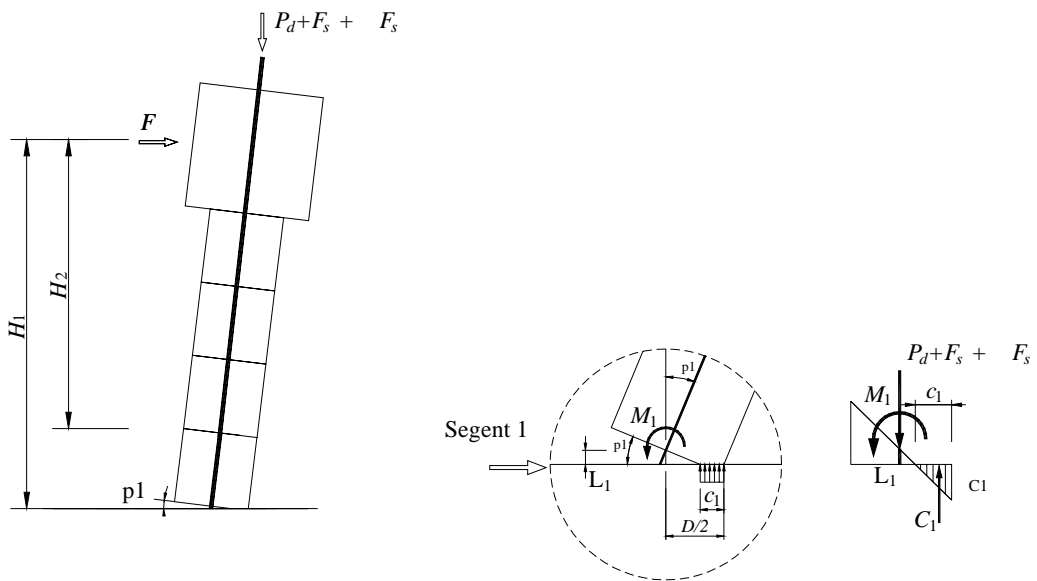
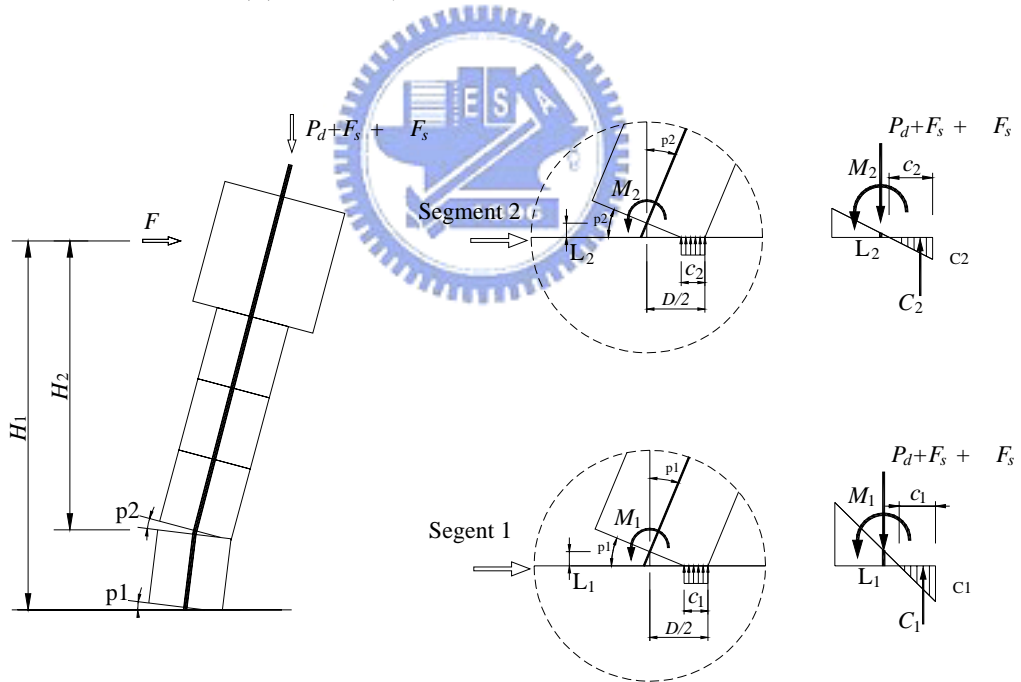


圖 3.48 試體 SP2 鋼管南側縱向應變與力量歷時



(a) 第一節塊底部發生塑性鉸



(b) 第一節塊與第二節塊底部皆發生塑性鉸

圖 3.49 修正的橋柱分析模型

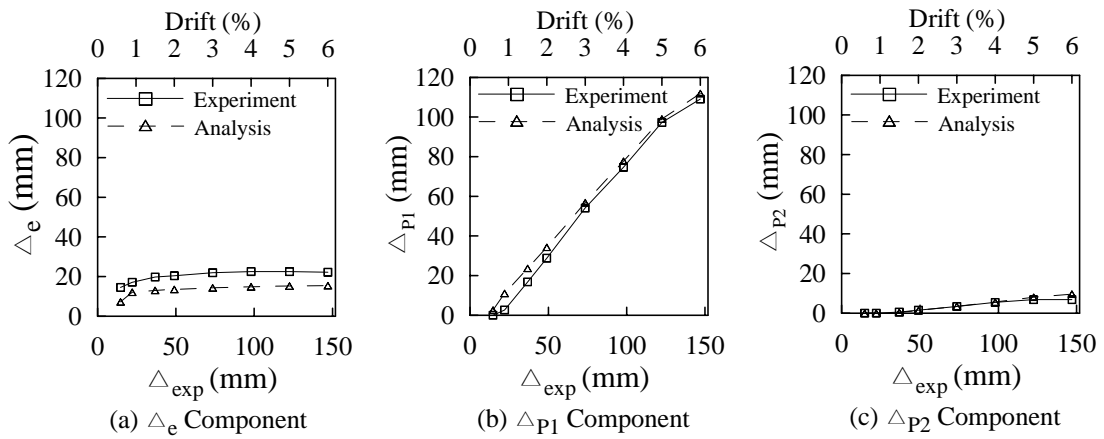


圖 3.50 試體 SP1 試驗與分析模型的側位移量分析比較

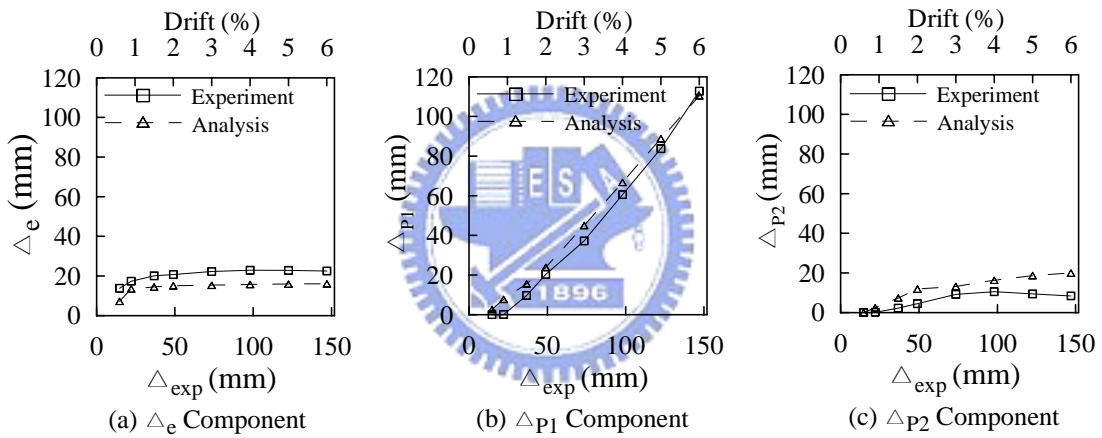
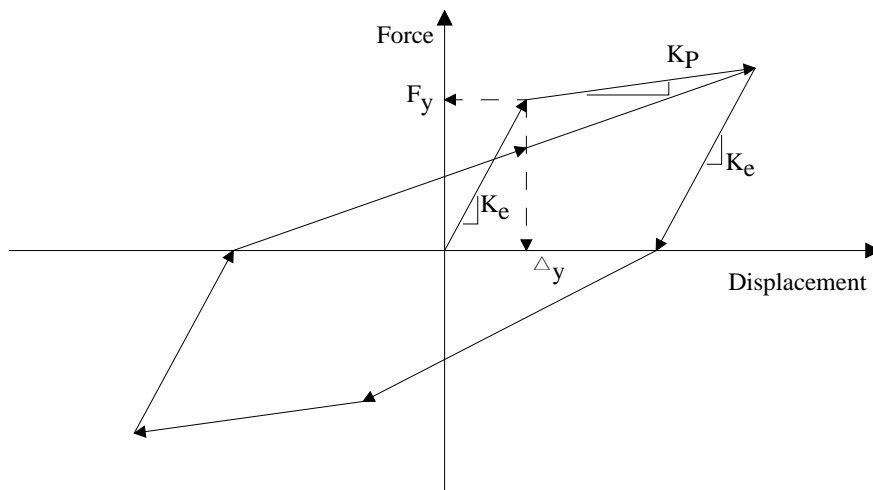
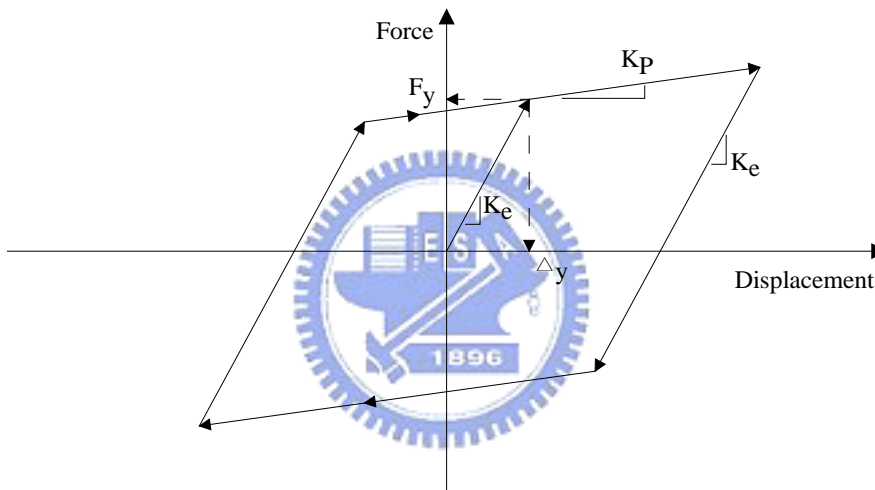


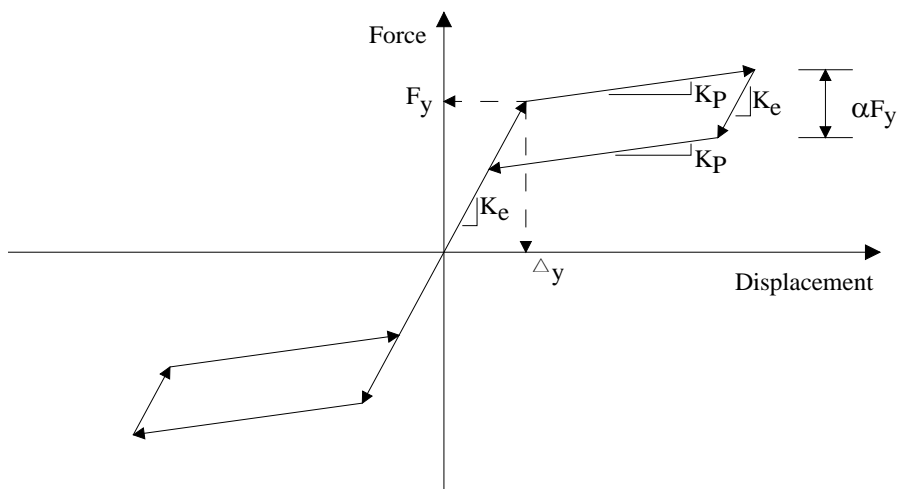
圖 3.51 試體 SP2 試驗與分析模型的側位移量分析比較



(a) Stiffness Degrading Model



(b) Bilinear Elastoplastic Model



(c) Flag Shaped Model

圖 4.1 非線性動力分析模型

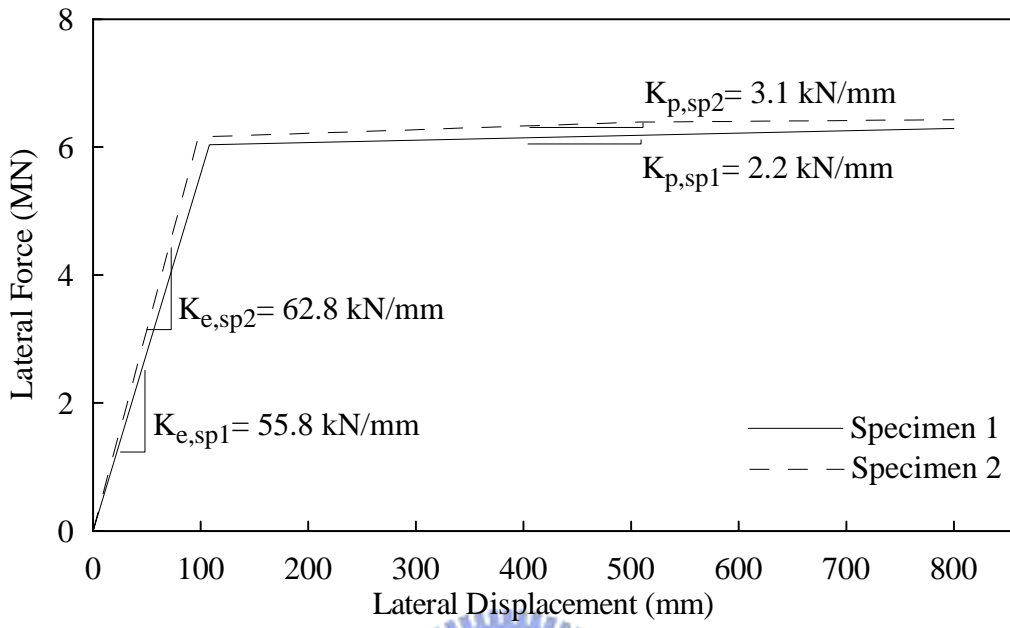
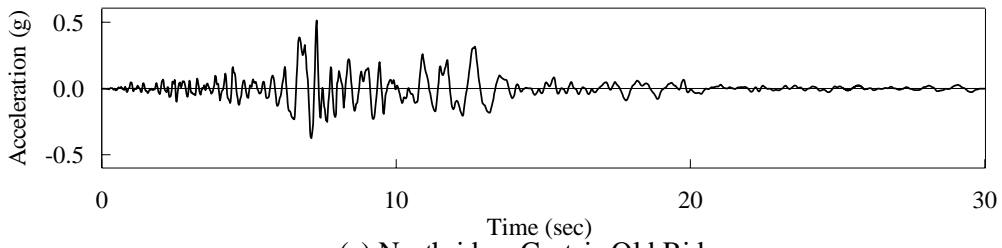
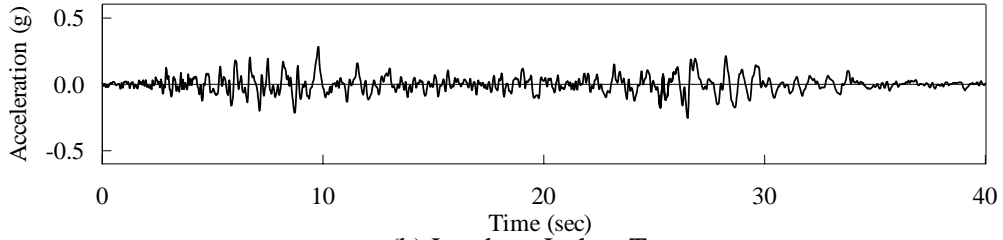


圖 4.2 實尺橋柱力量位移關係圖

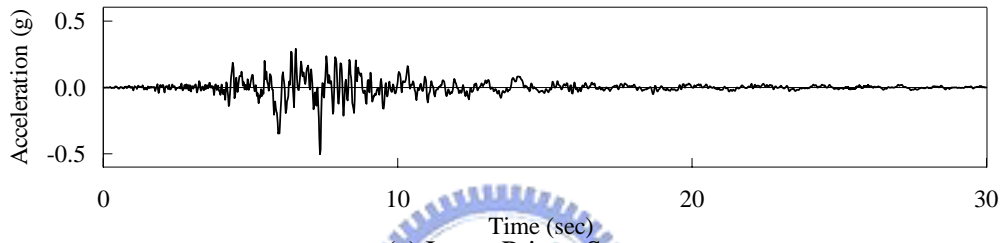




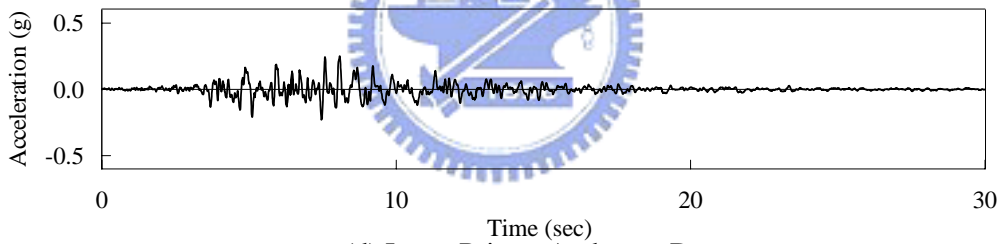
(a) Northridge: Castaic Old Ridge



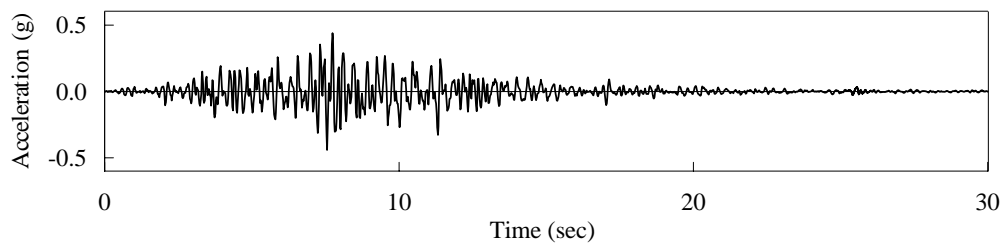
(b) Landers: Joshua Tree



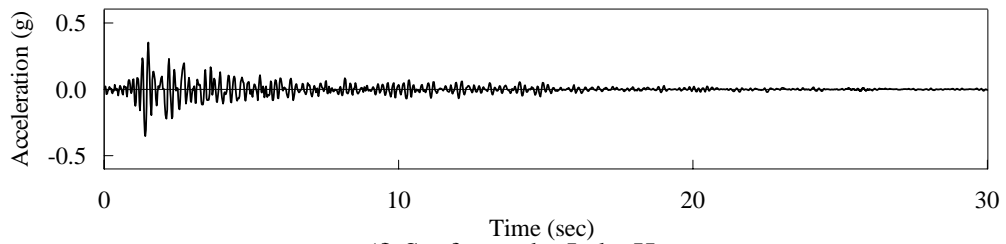
(c) Loma Prieta: Saratoga



(d) Loma Prieta : Anderson Dam

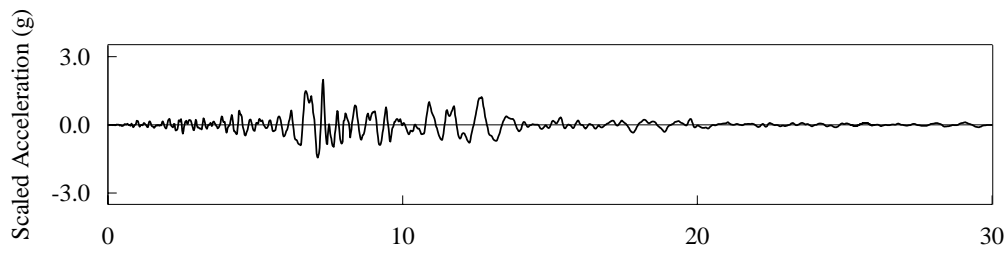


(e) Loma Prieta: Santa Cruz

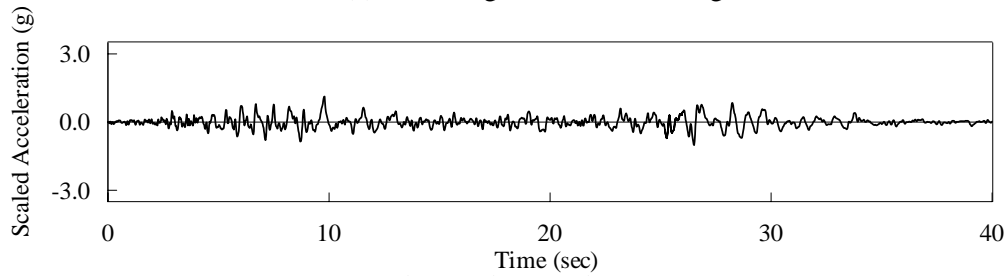


(f) Sanfernado: Lake Huges

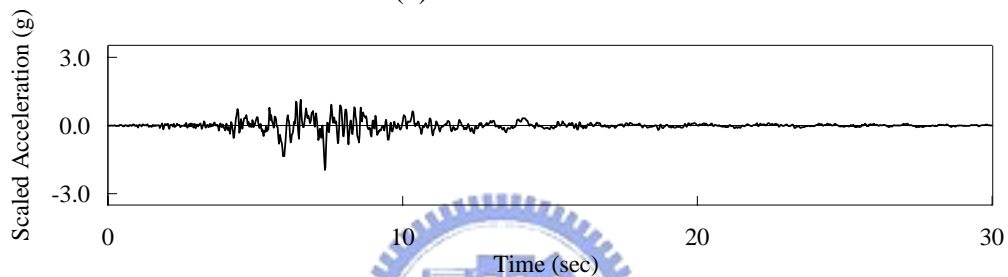
圖 4.3 六組地震紀錄加速度歷時



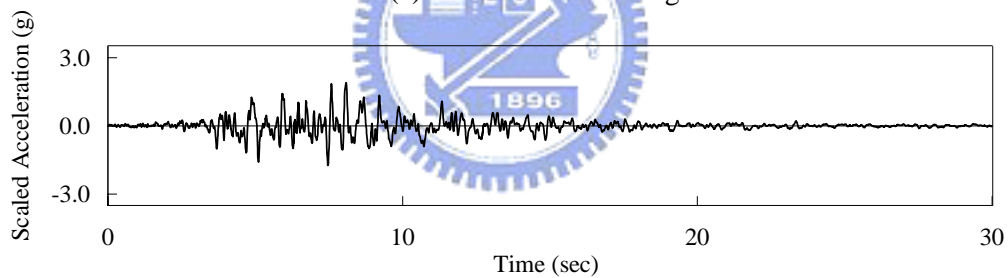
(a) Northridge: Castaic Old Ridge



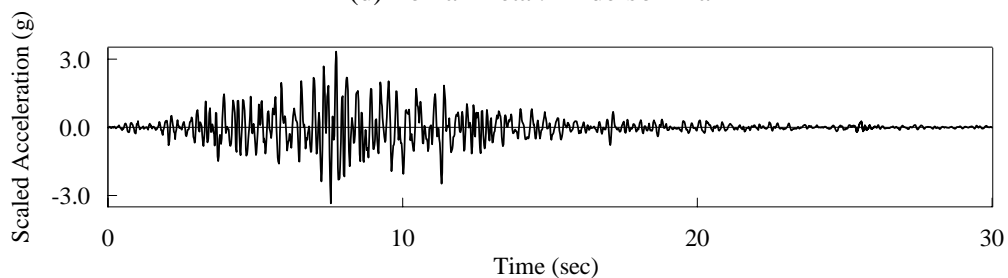
(b) Landers: Joshua Tree



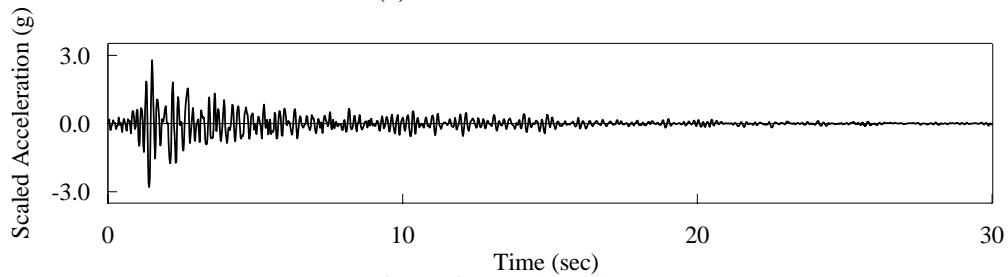
(c) Loma Prieta: Saratoga



(d) Loma Prieta : Anderson Dam

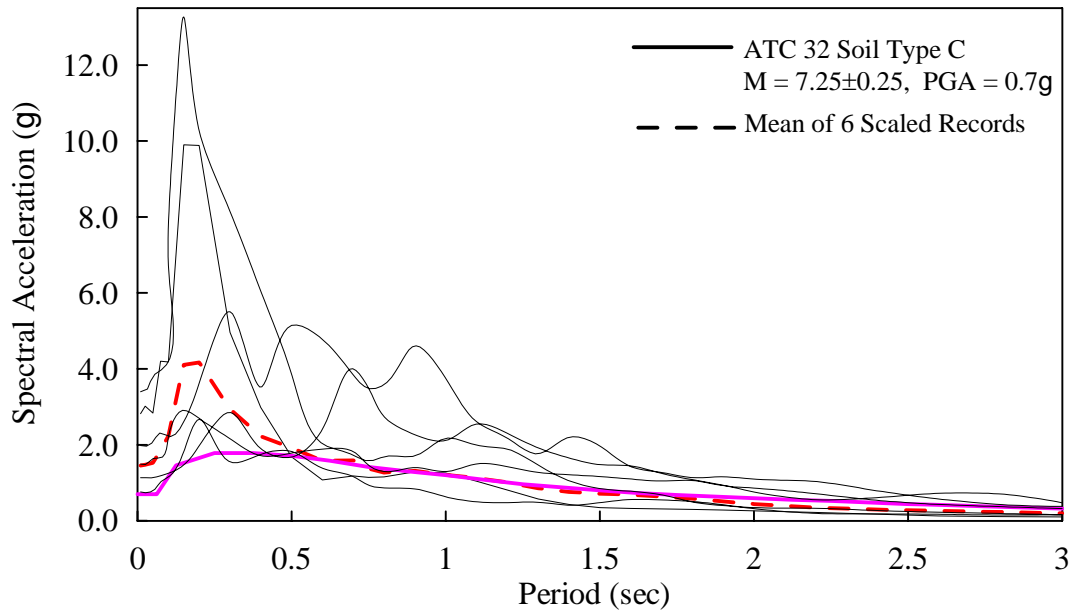


(e) Loma Prieta: Santa Cruz

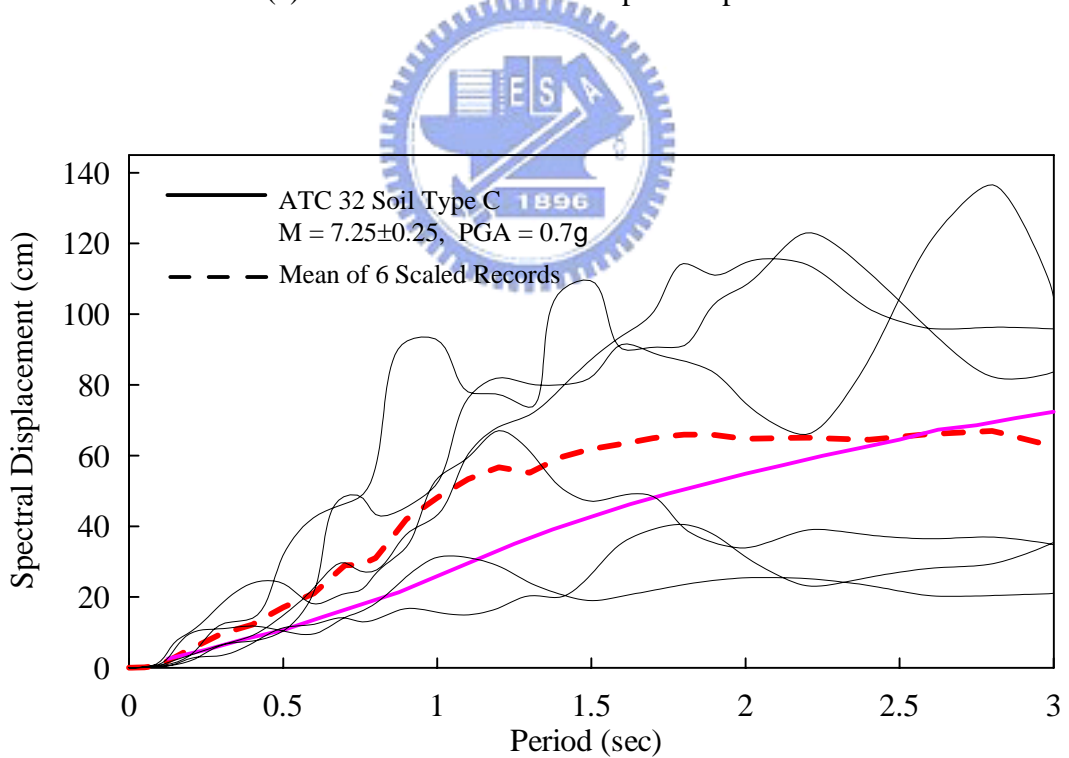


(f) Sanfernando: Lake Huges

圖 4.4 六組調整地震加速度歷時 ($T = 2.55$ 秒)



(a) Elastic Acceleration Response Spectra



(b) Elastic Displacement Response Spectra

圖 4.5 六組調整地震加速度歷時彈性反應譜 (T = 2.55 秒)

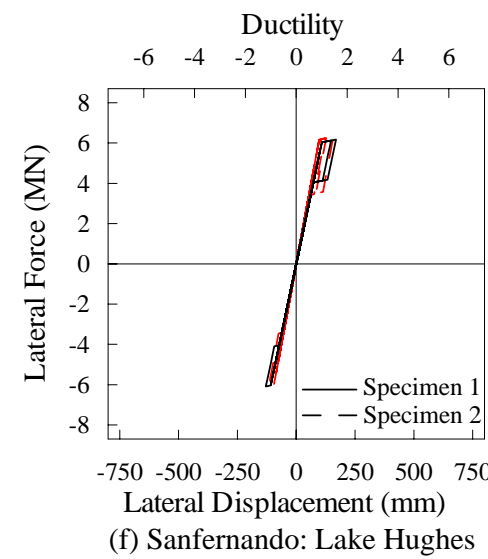
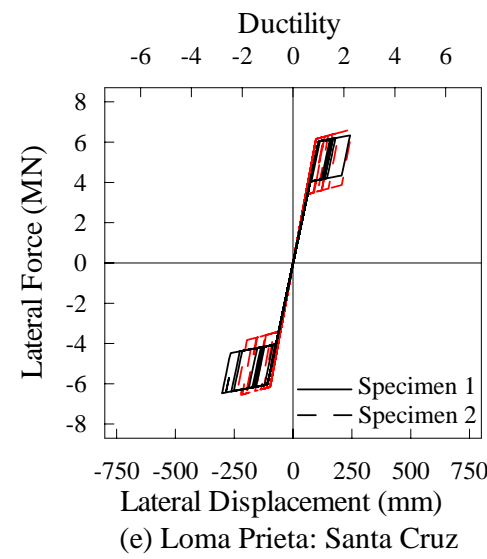
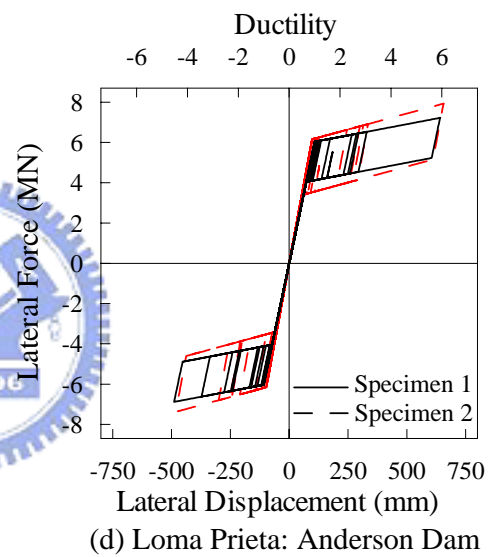
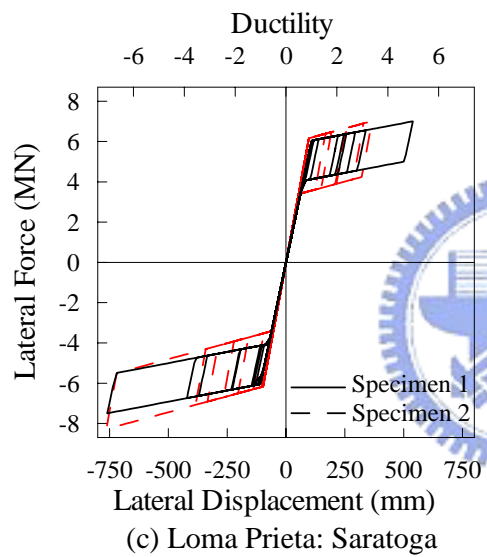
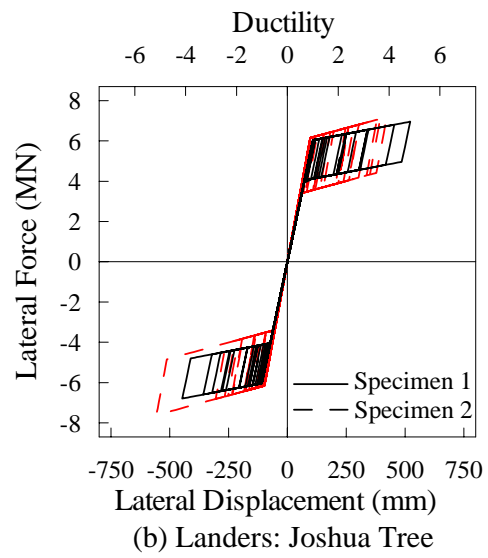
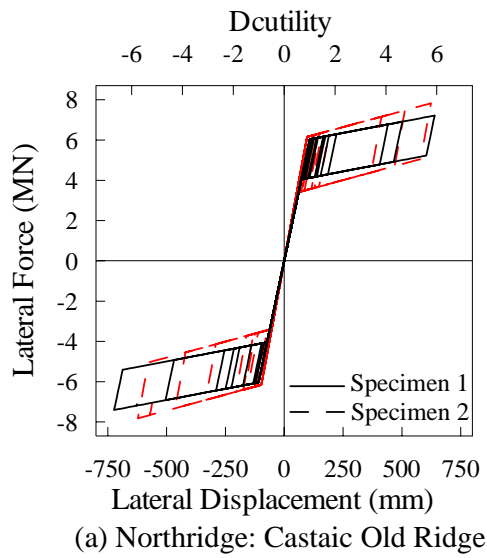


圖 4.6 預力節塊橋柱試體SP1與試體SP2力量位移關係($T = 2.55$ 秒)

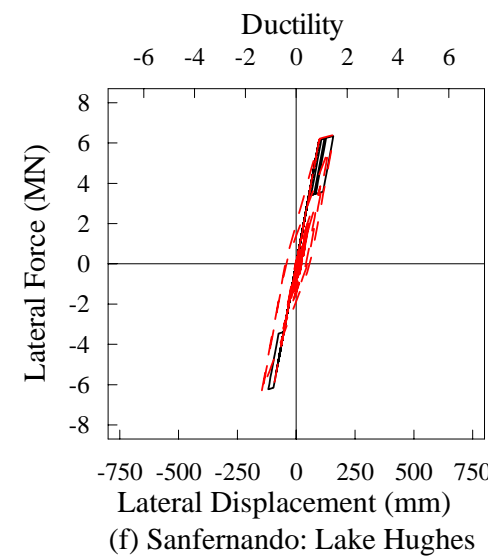
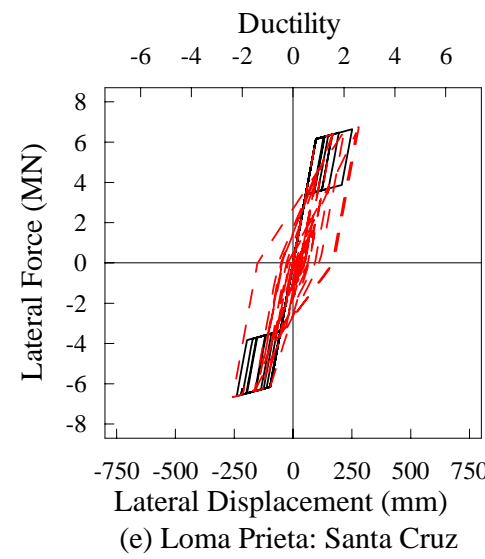
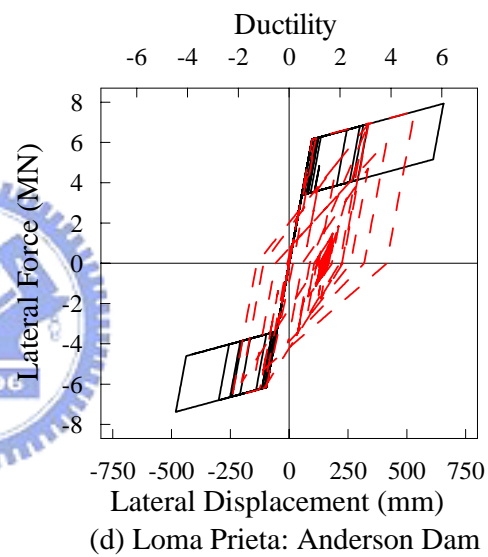
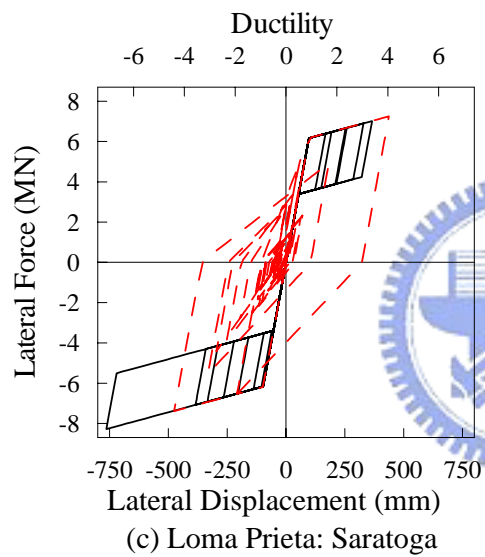
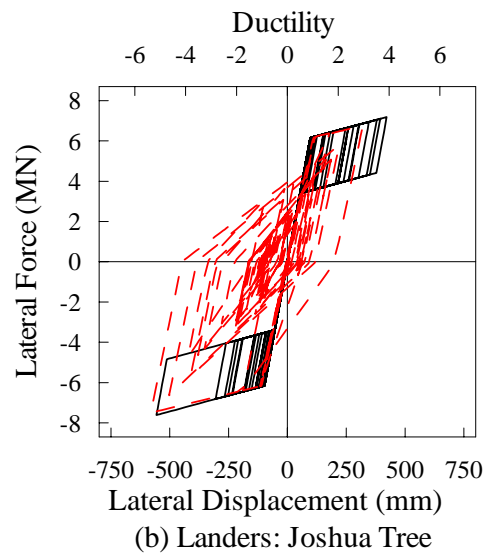
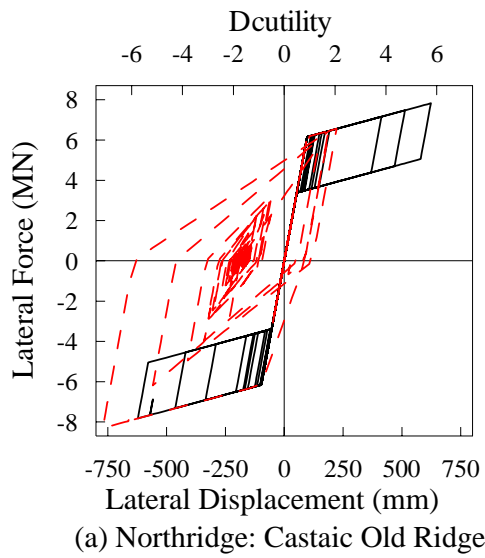


圖 4.7 鋼筋混凝土橋柱與預力節塊橋柱力量位移關係(T=2.55 秒)

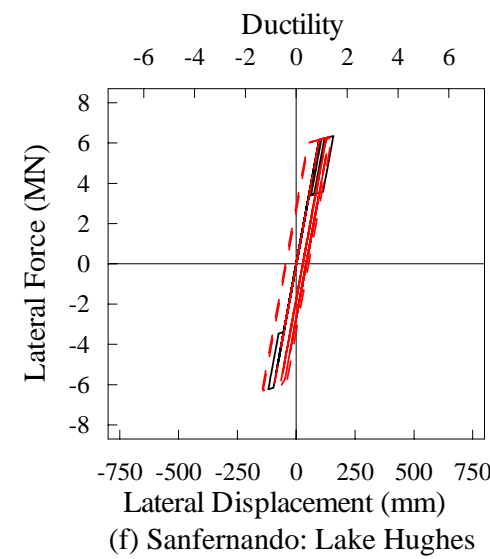
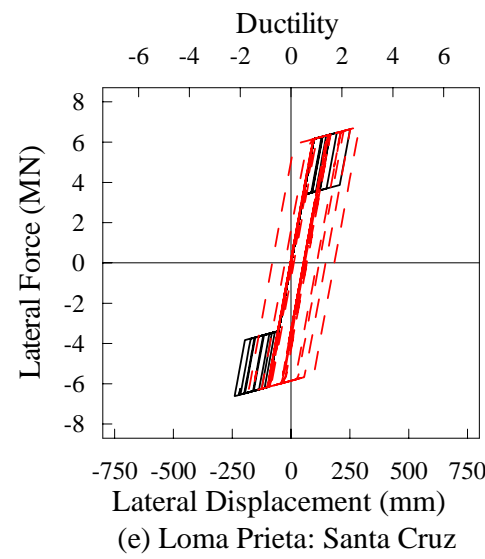
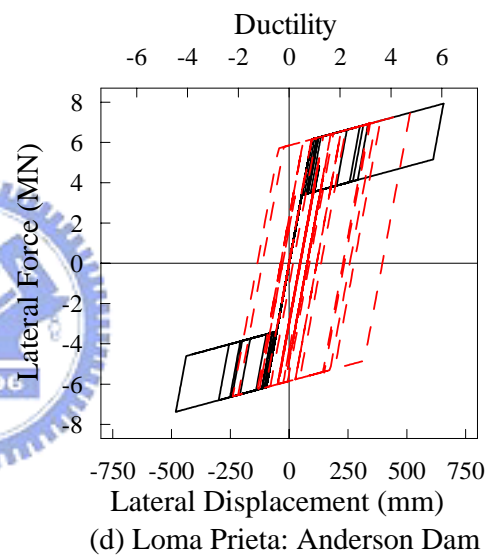
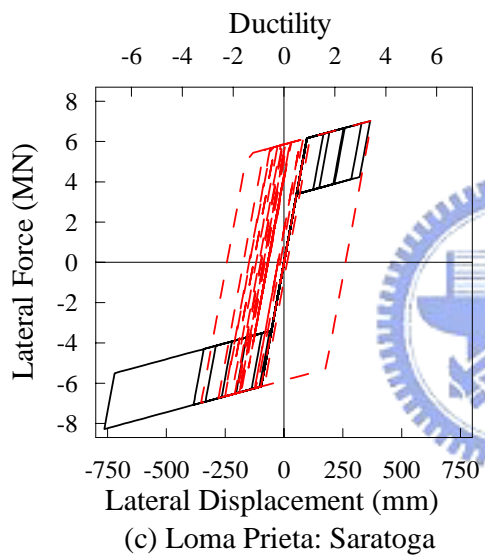
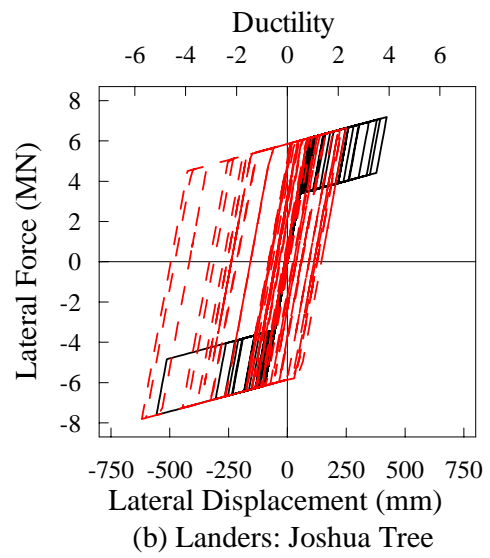
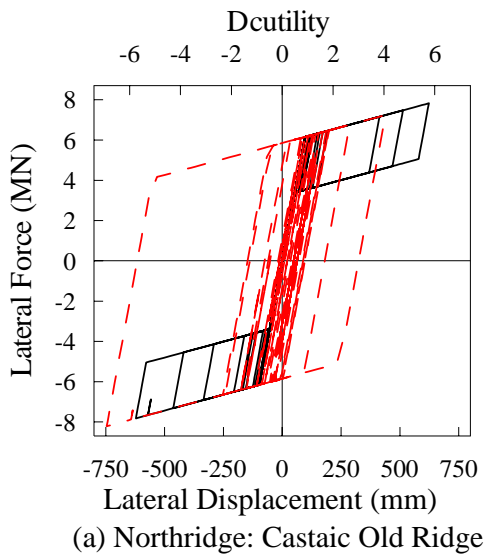
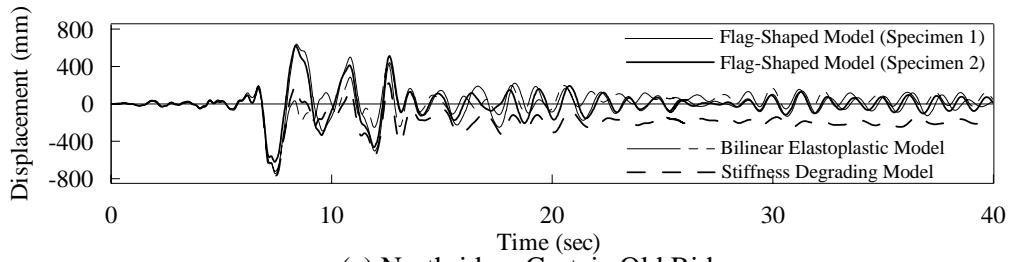
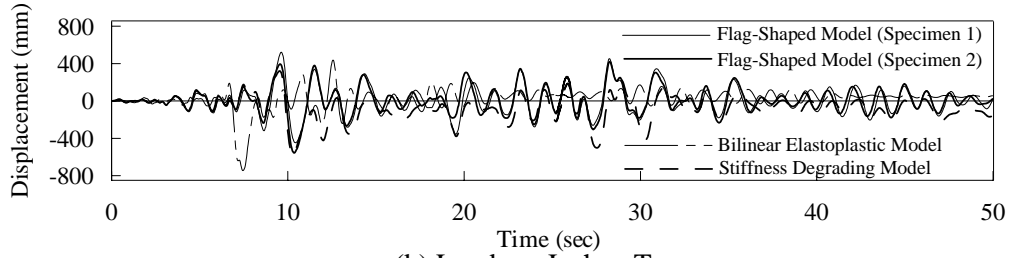


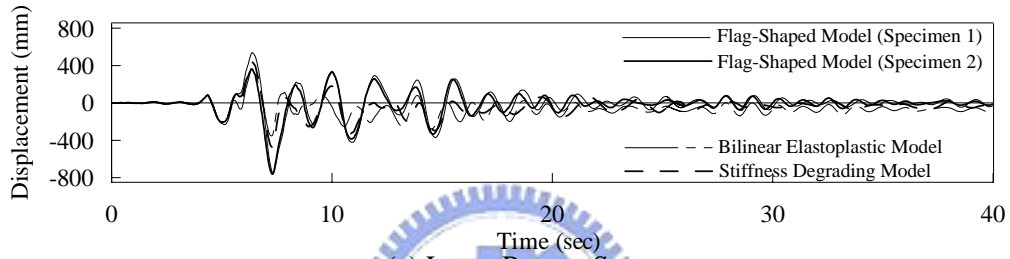
圖 4.8 鋼管混凝土橋柱與預力節塊橋柱力量位移關係(T=2.55 秒)



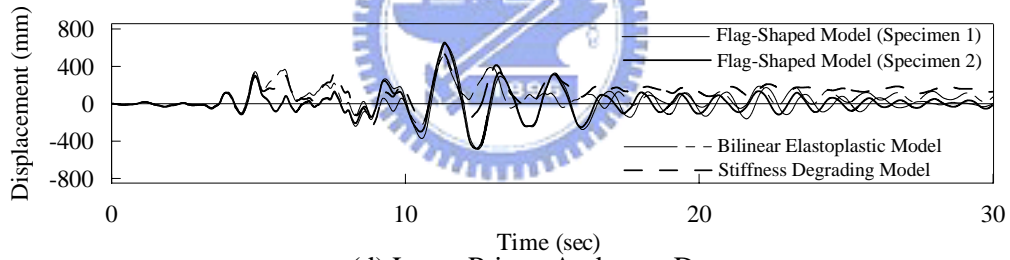
(a) Northridge: Castaic Old Ridge



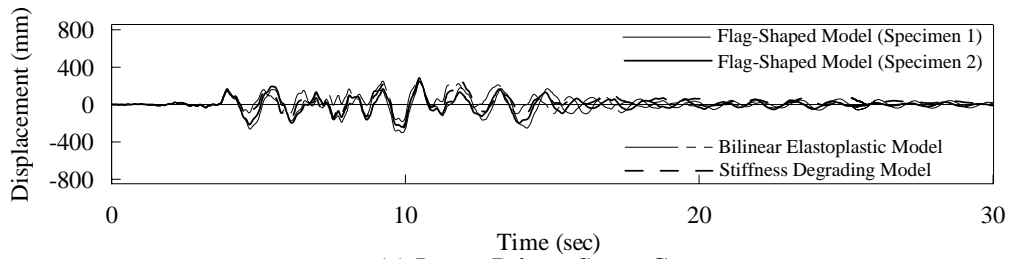
(b) Landers: Joshua Tree



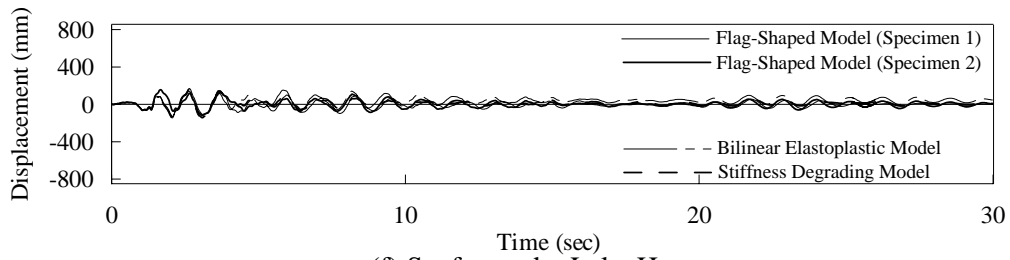
(c) Loma Prieta: Saratoga



(d) Loma Prieta: Anderson Dam

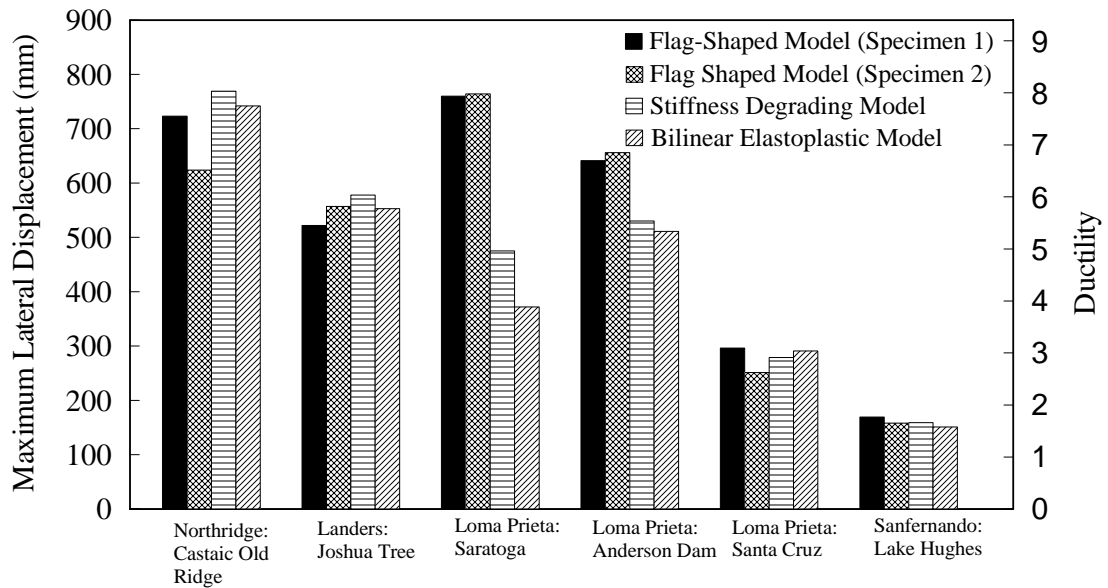


(e) Loma Prieta: Santa Cruz

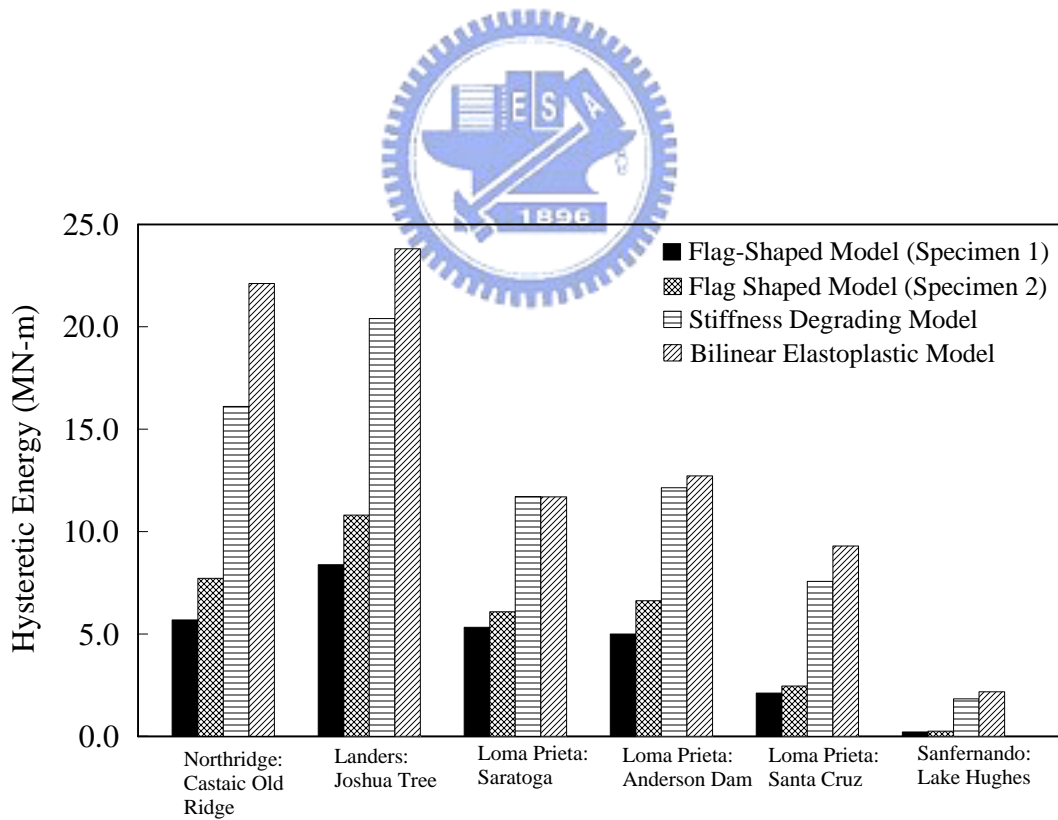


(f) Sanferando: Lake Huges

圖 4.9 位移歷時反應(T = 2.55 秒)

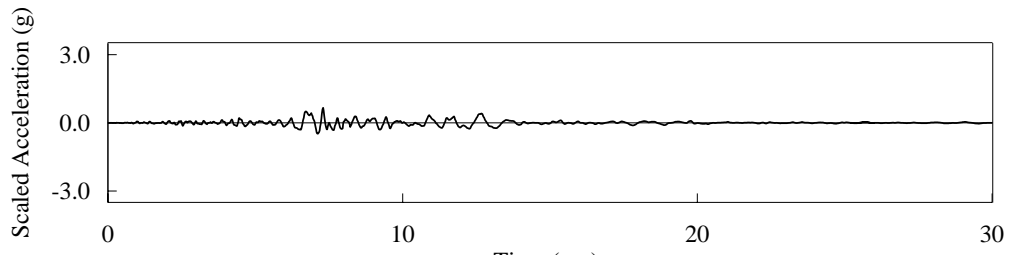


(a) Maximum Lateral Displacement

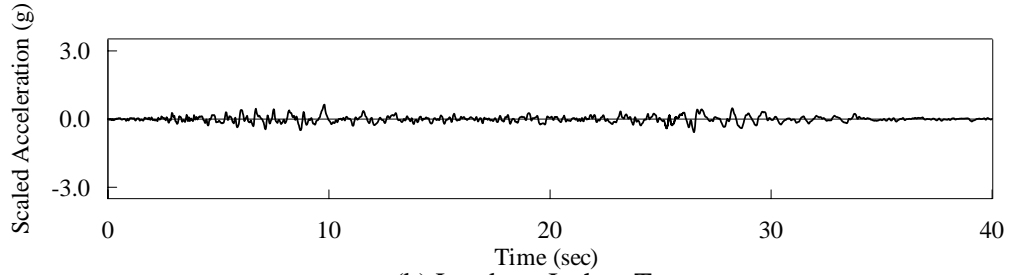


(b) Maximum Hysteretic Energy

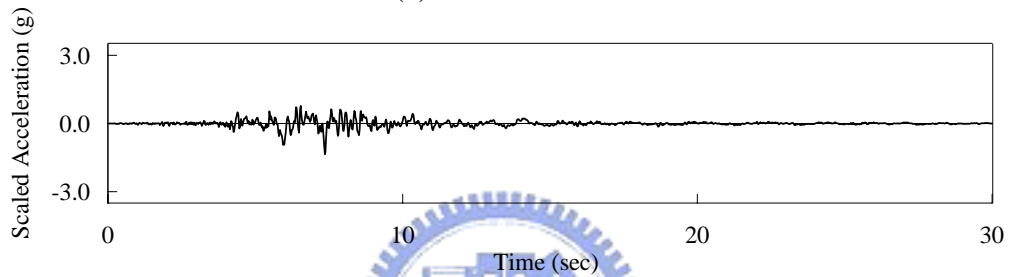
圖 4.10 最大位移與遲滯能量消釋比較圖(T = 2.55 秒)



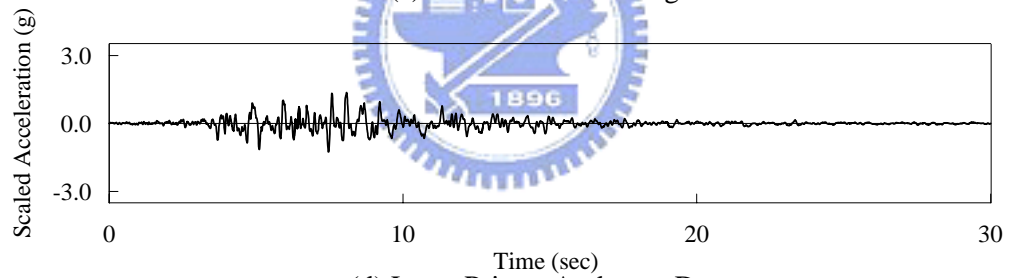
(a) Northridge: Castaic Old Ridge



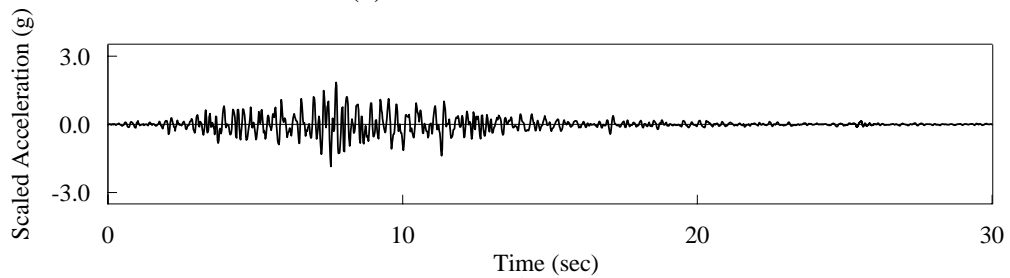
(b) Landers: Joshua Tree



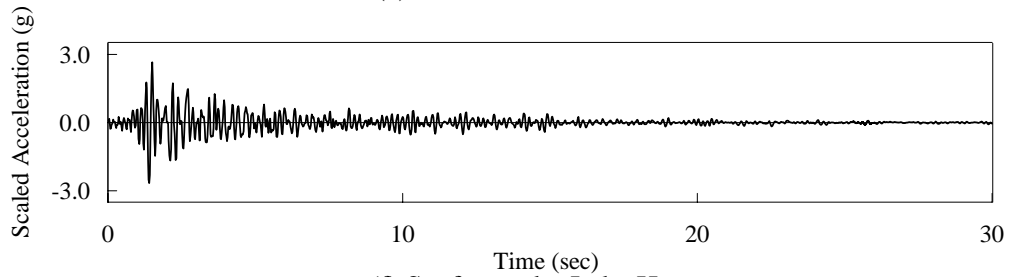
(c) Loma Prieta: Saratoga



(d) Loma Prieta : Anderson Dam

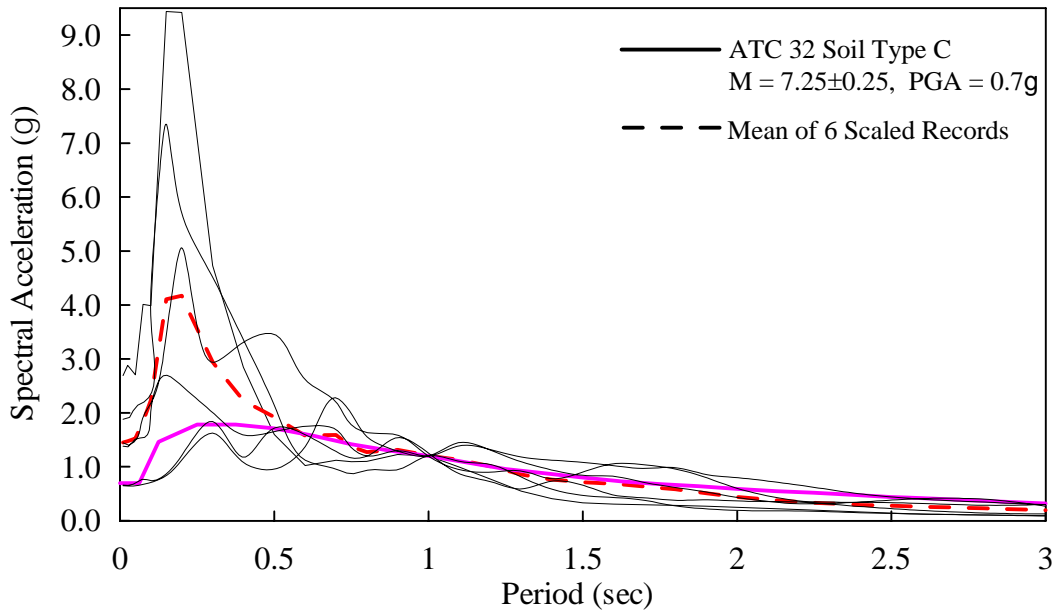


(e) Loma Prieta: Santa Cruz

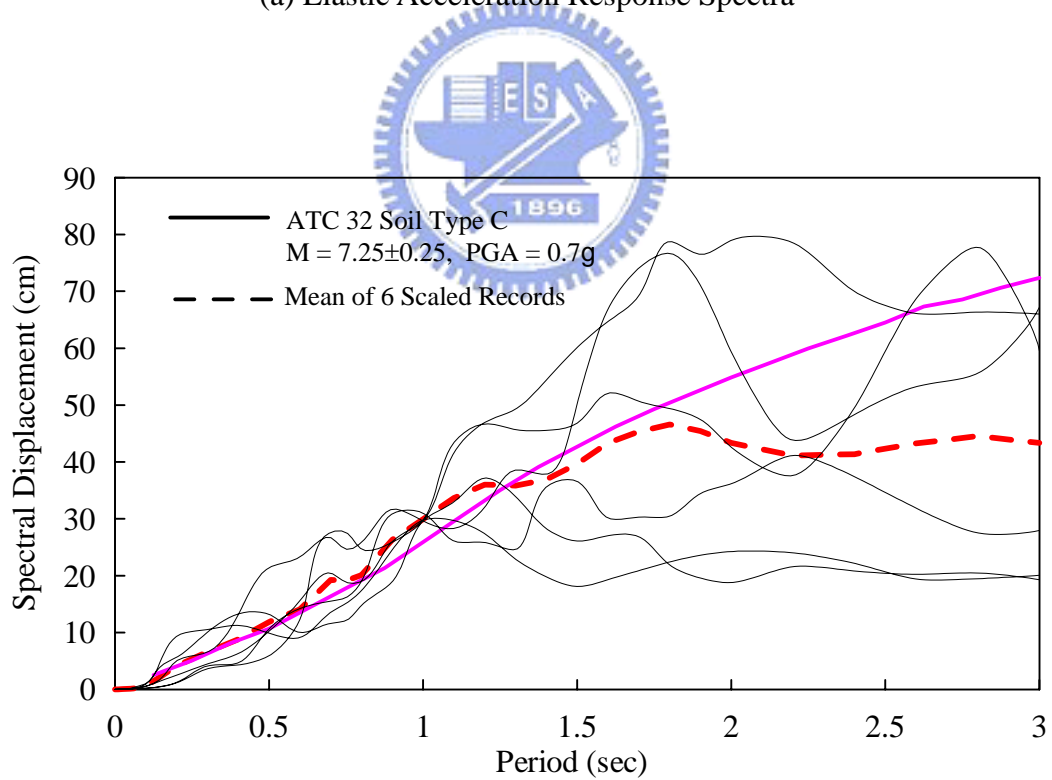


(f) Sanfernando: Lake Huges

圖 4.11 六組調整地震加速度歷時 (T=1.0 秒)



(a) Elastic Acceleration Response Spectra



(b) Elastic Displacement Response Spectra

圖 4.12 六組調整地震加速度歷時彈性反應譜 ($T=1.0$ 秒)

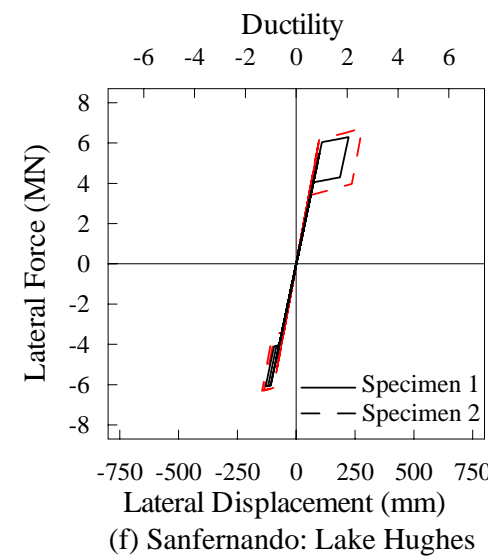
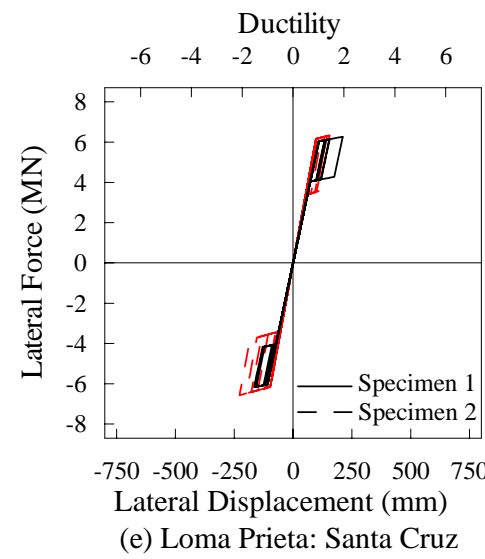
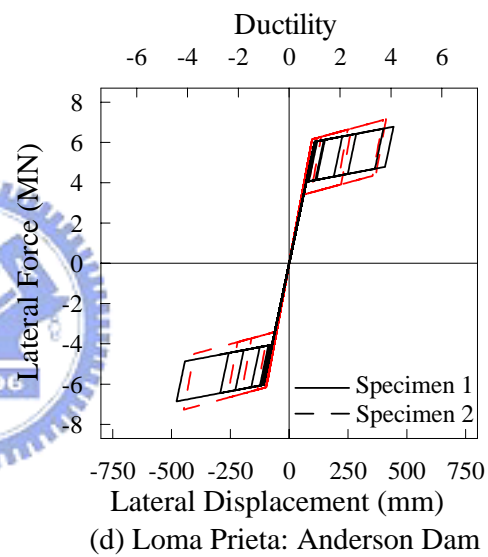
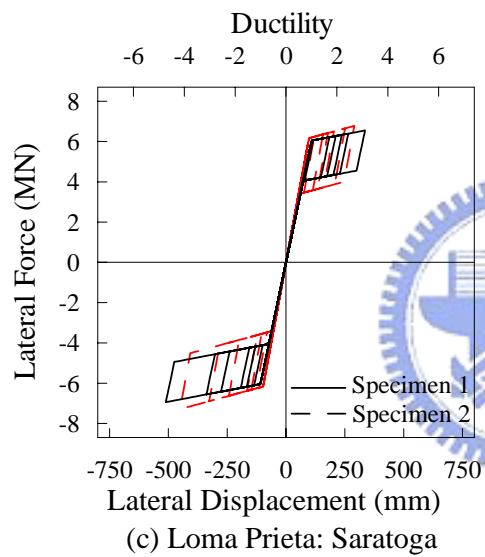
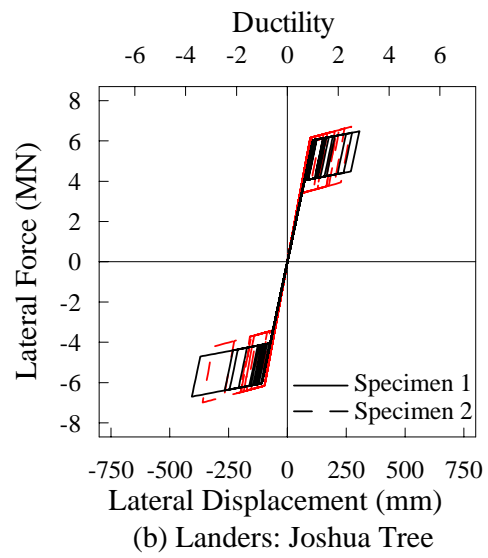
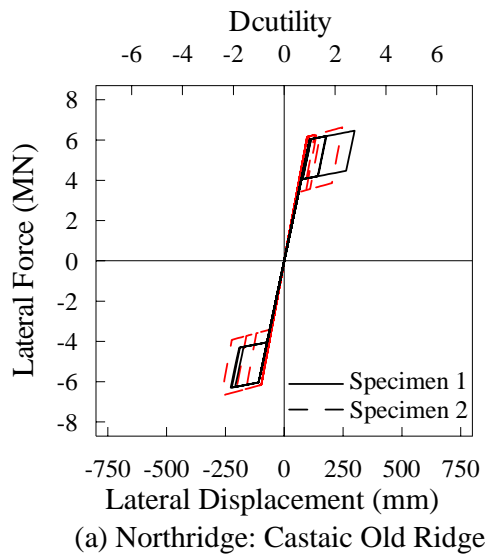


圖 4.13 預力節塊橋柱試體SP1與試體SP2 力量位移關係圖(T=1.0 秒)

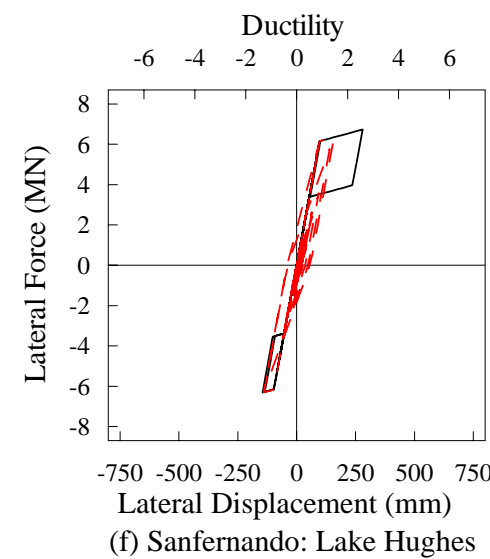
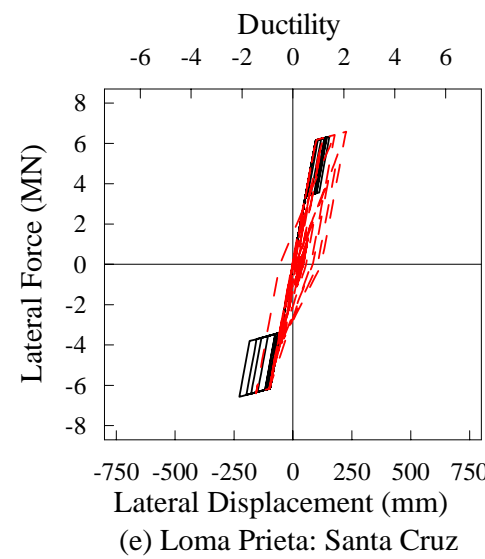
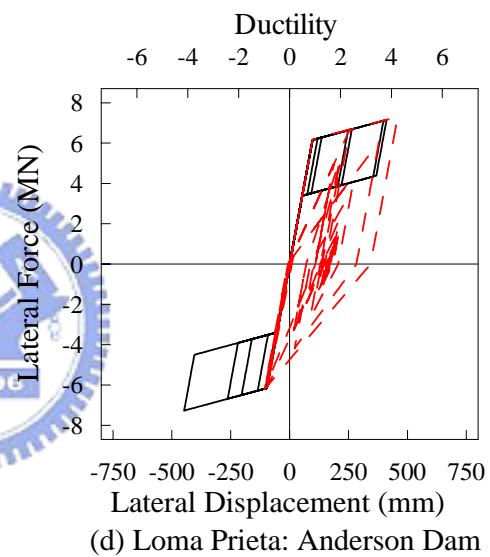
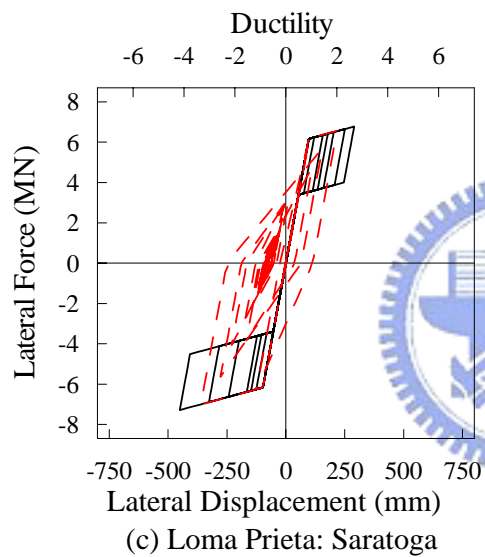
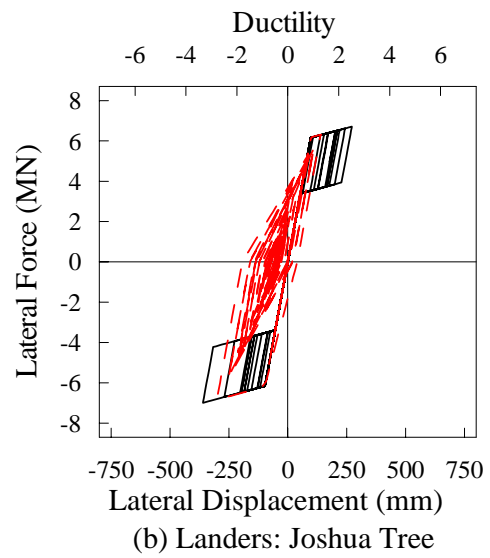
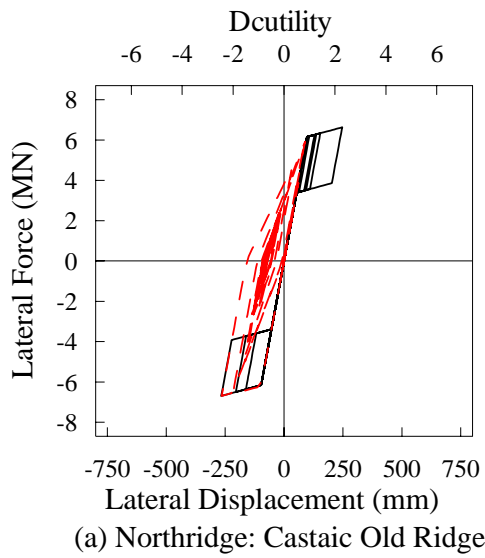


圖 4.14 鋼筋混凝土橋柱與預力節塊橋柱比較圖(T=1.0 秒)

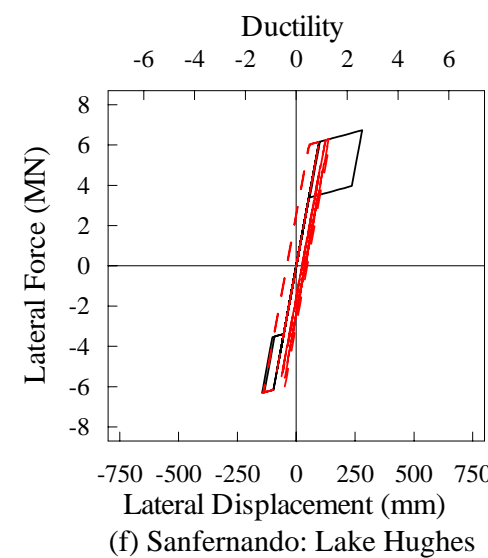
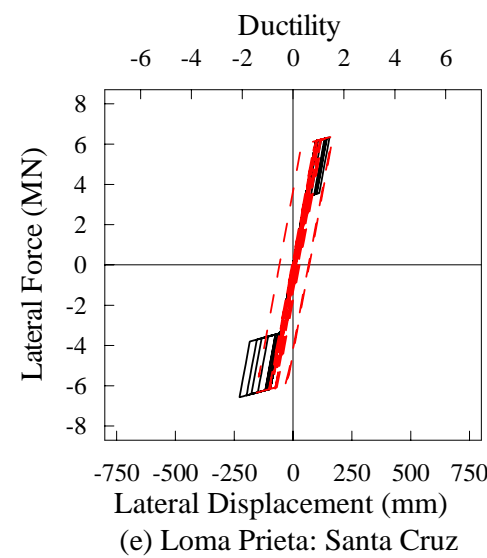
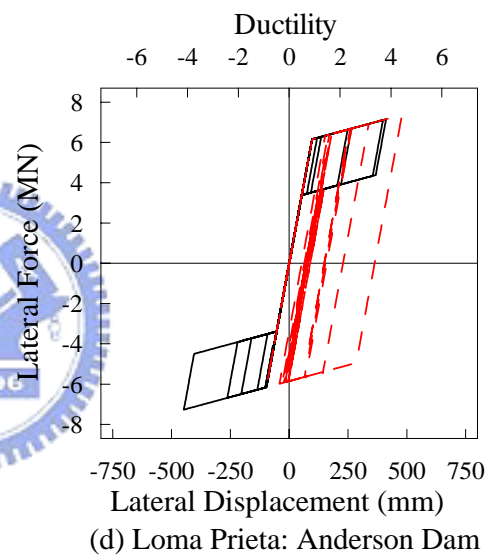
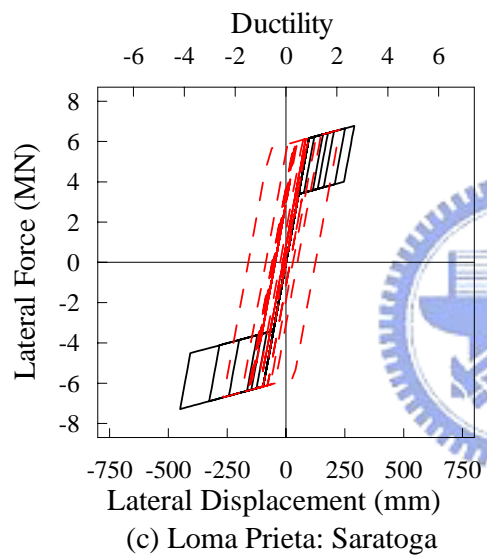
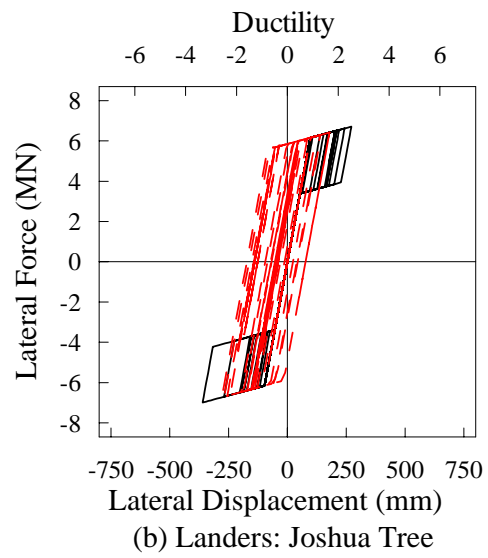
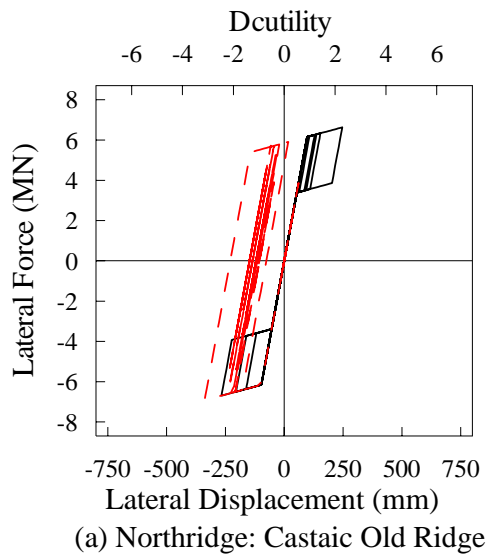
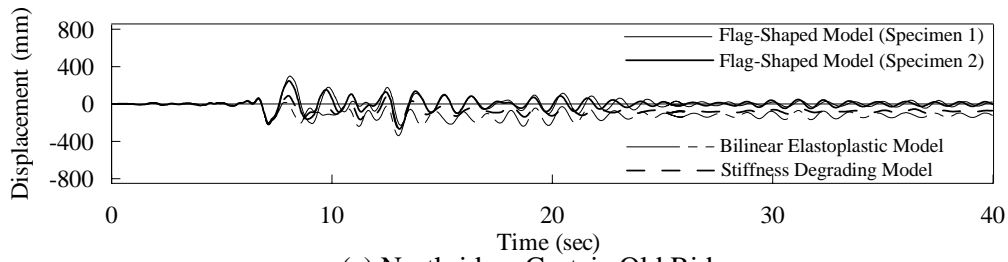
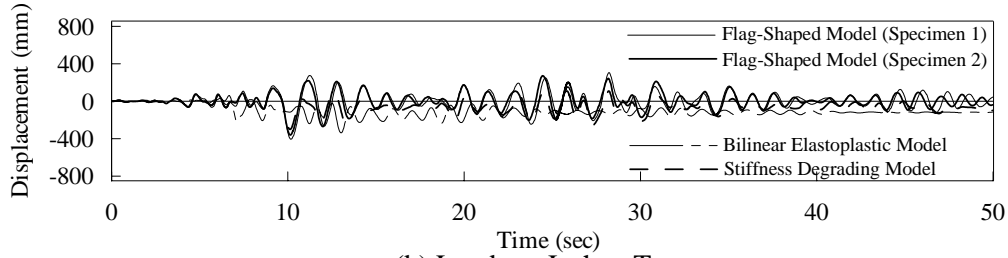


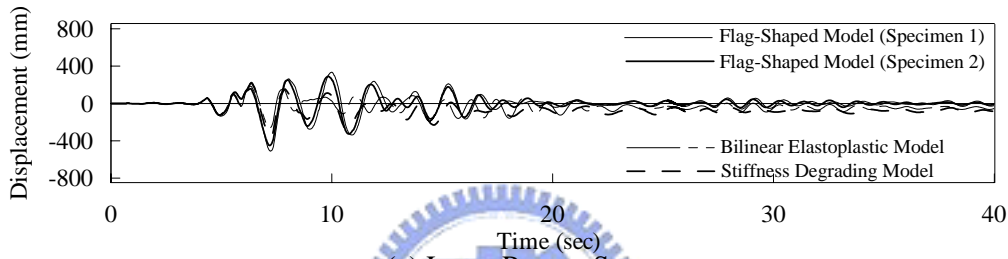
圖 4.15 鋼管混凝土橋柱與預力節塊橋柱比較圖(T = 1.0 秒)



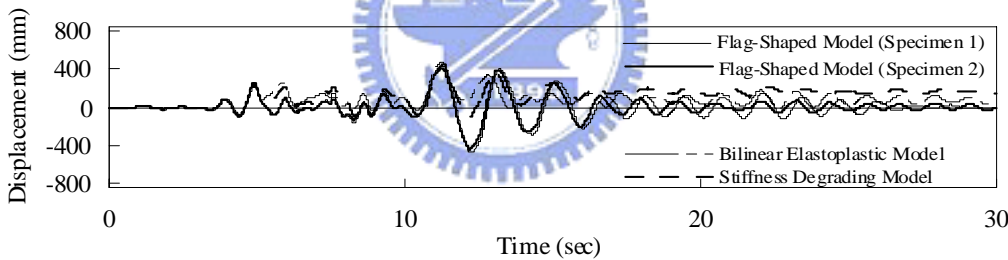
(a) Northridge: Castaic Old Ridge



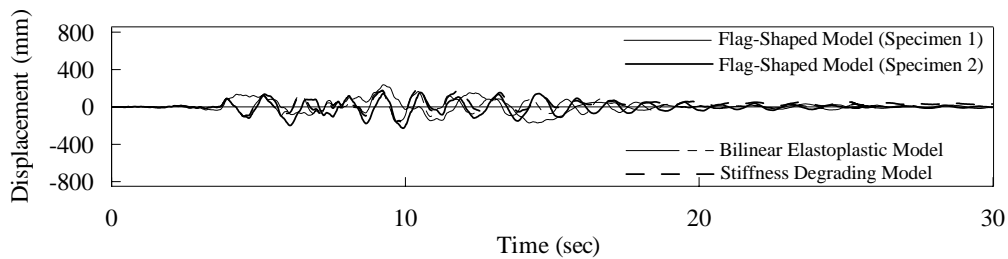
(b) Landers: Joshua Tree



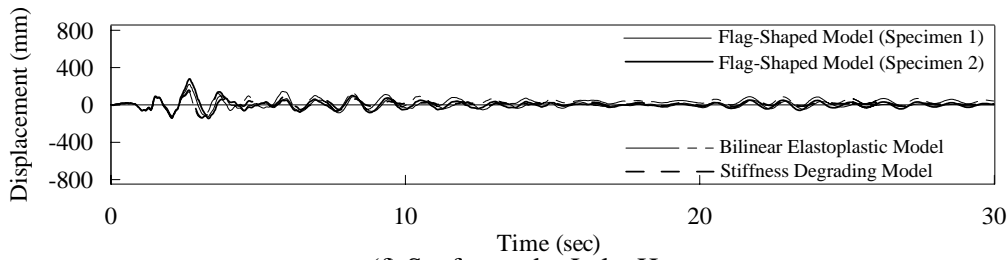
(c) Loma Prieta: Saratoga



(d) Loma Prieta: Anderson Dam

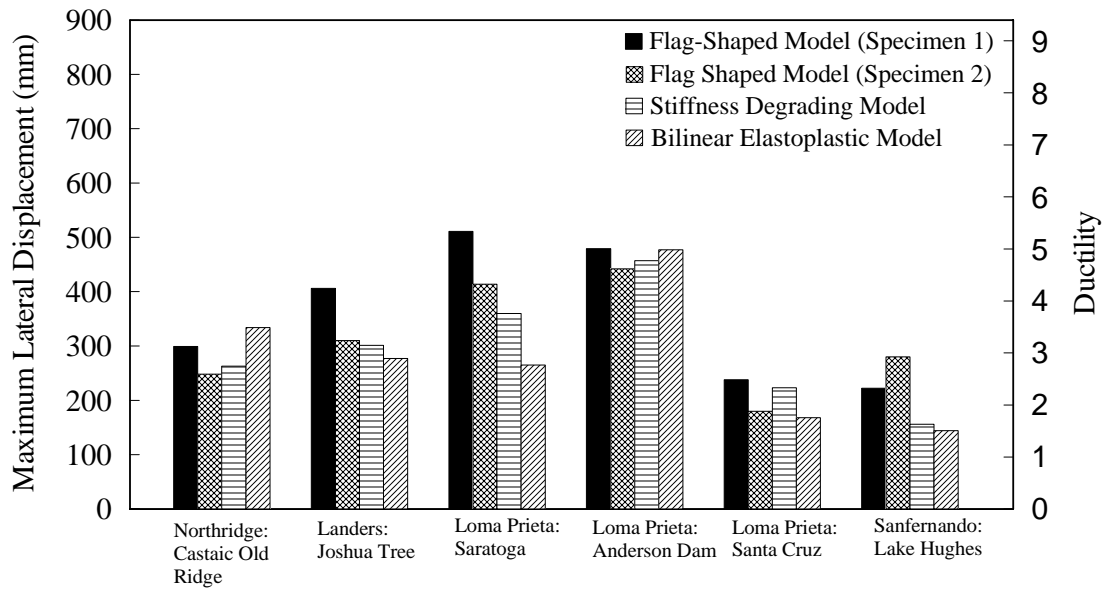


(e) Loma Prieta: Santa Cruz

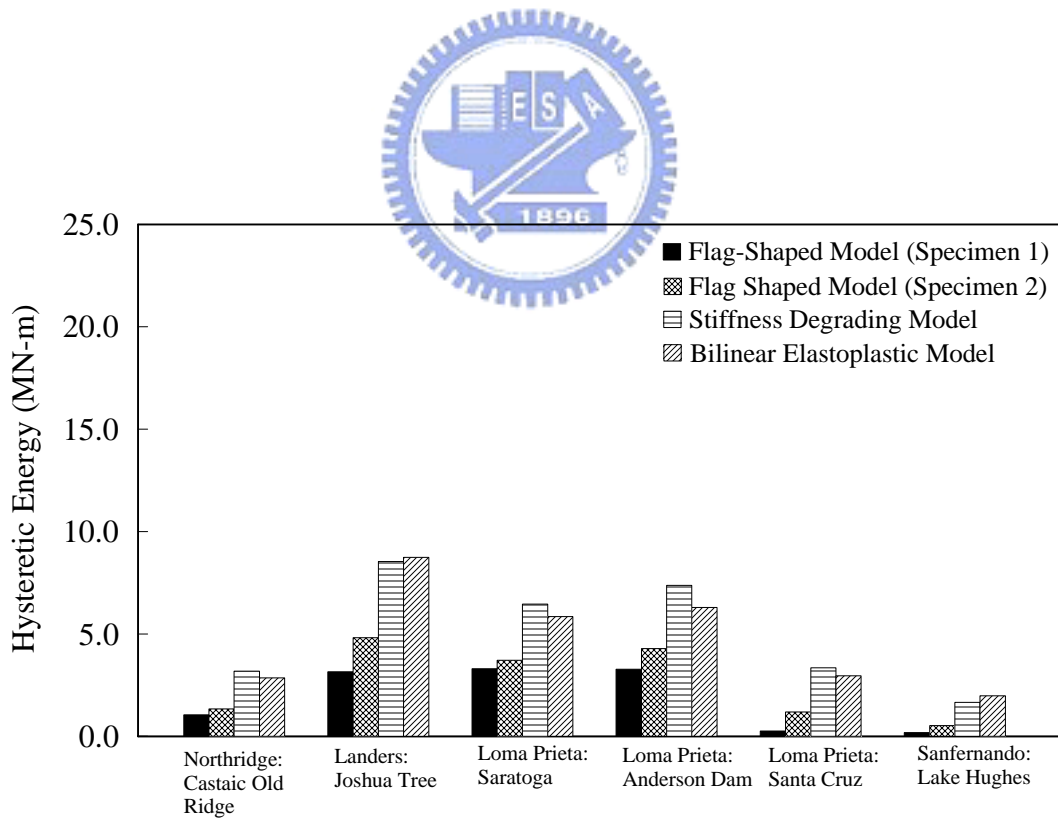


(f) Sanferando: Lake Huges

圖 4.16 位移歷時反應(T = 1.0 秒)



(a) Maximum Lateral Displacement



(b) Maximum Hysteretic Energy

圖 4.17 最大位移與遲滯能量消釋比較圖(T = 1.0 秒)