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가

가

가

가

2.2

3) (Completeness)

가

가

(Connection)

가

1)

가

1.

2.

2.1

가

1) (Simplicity)

가

가

가

가

(fuse element)

(Shear Key)

2) (Symmetry)

(Dispation)

(Ductity)

(Stiffness)

가

1

4) (Continuity)

가

(center of stiffness)

(center of mass)

가

2)

가

가 가

가

가

(continuity cable)

,P-

가

가



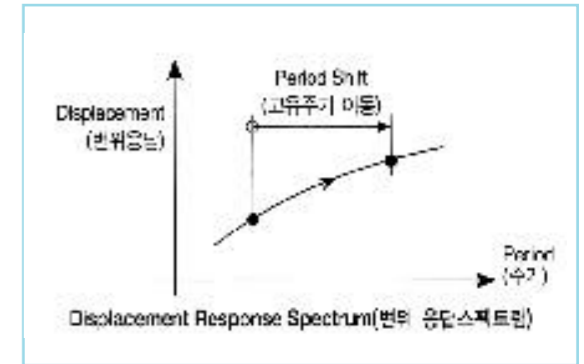
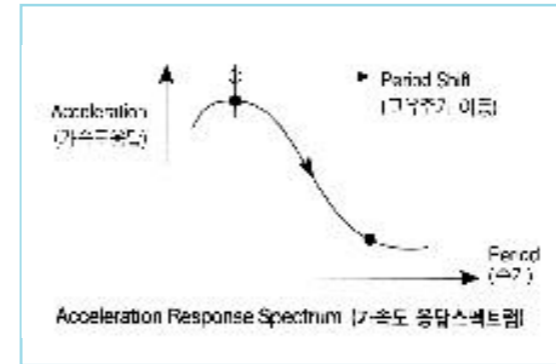
가
3) 가
가
가
가

가
가
4) 가
가
가
가
가

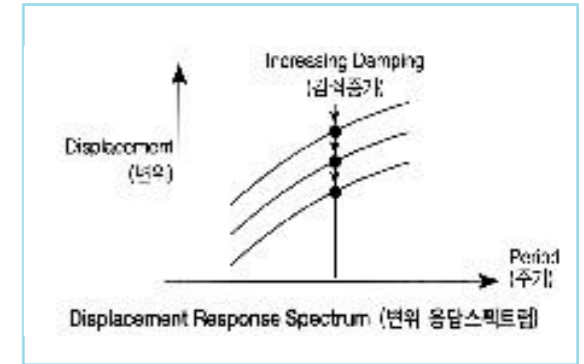
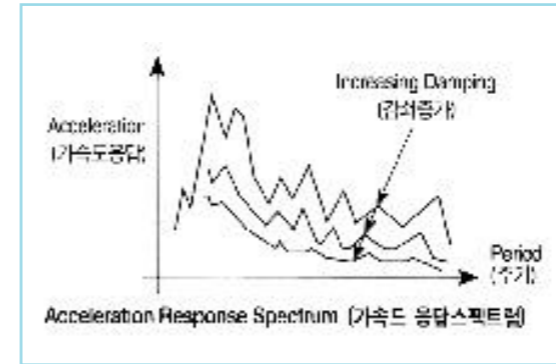
3.
3.1

가
가
가
가
가
3
(displacement response)
가
(acceleration response)
3

가
< 2 >



< 1 > 가



< 2 > (damper)

(displacement response) 가 (acceleration response) 1
(damper) 가

가 (Shear Key)

3.2

1)

2)

가. 1

가.

1
가

(STU, Shock Transmission Units)

(Seismic Isolation)

가

4.

4.1

(Rubber Bearing)

1

(LRB, Lead Rubber Bearing)

1

(HDRB, High Damping Rubber Bearing)

· P-FBI (Pure-Friction base isolation)

가

가

· R-FBI (Resilient-Friction base isolation)

· EDF (Electricite De France)

· SR-F (Sliding Resilient Friction)

가

(STU)

(Damper)

STU

가

가

(hysteresis damping)

가

(viscous damping)

N

T

(Mass effect system)

가

$$T=2\pi \times \sqrt{\frac{M}{NK}} \quad (M, K)$$

$$C_s=(12 \times A \times S)/T^{2.3} \cdot B \cdot N^{1/3} \quad (B)$$

(TMD, Tuned Mass Damper)

F

(TLD, Tuned Liquid Damper)

$$F=C_s \cdot W=B \cdot WN^{1/3} \quad (W)$$

F F/N

(Active control system)

$$F=C_s \cdot W/N=B \cdot N^{2/3}$$

(AMD, Active Mass Damper)

2

26%

(Hybrid system)

가

50%가

63%

· HMD=TMD+AMD

3

44%

가

| < 1 > | | |
|-------|-------|---------|
| | (F) | (F/N) |
| 1 | 1.00 | 1.00 |
| 2 | 1.26 | 0.63 |
| 3 | 1.44 | 0.48 |
| 4 | 1.58 | 0.40 |
| 5 | 1.71 | 0.34 |
| 6 | 1.82 | 0.30 |
| 7 | 1.91 | 0.27 |
| 8 | 2.0 | 0.25 |

1)

(dissipator)

33%가 48%

5.

2)

가

5~10%

가

AASHTO

3가 가

1.

2.

3.

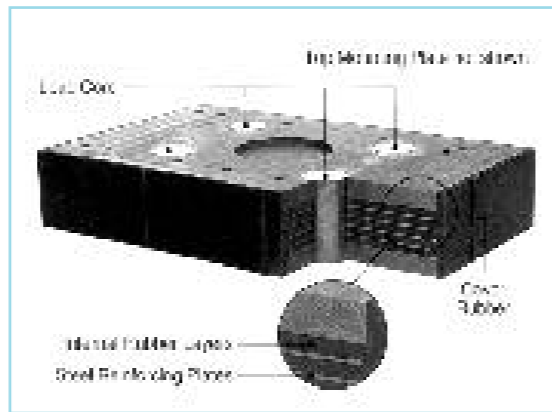
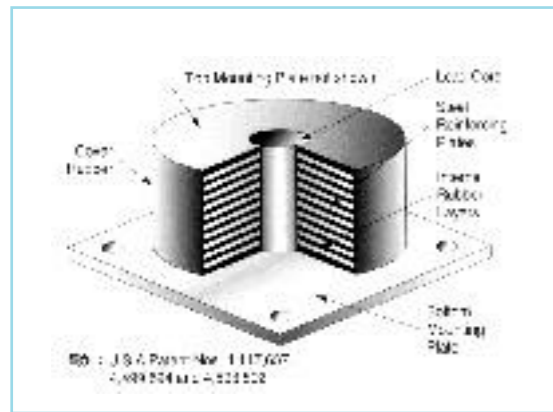
3) (Lead Core)

가

()

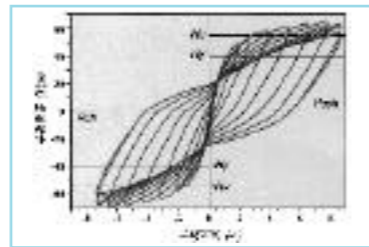
25%

(LRB)

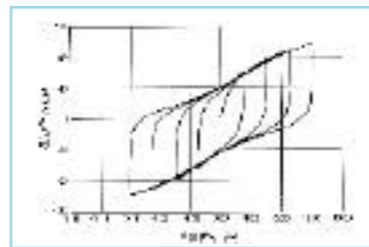


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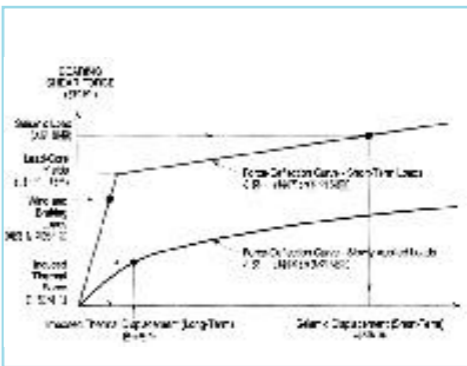
LRB



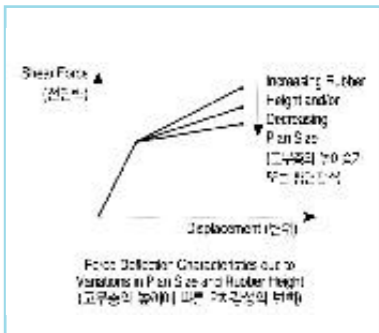
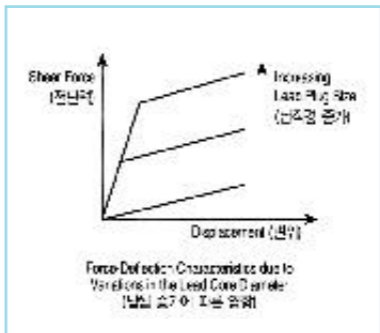
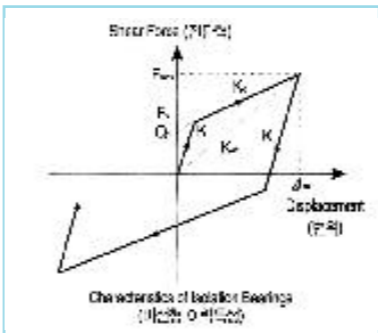
LRB



()



(LRB)



6. _____

가

가

가

가

가

가

1. ,
2. ,
3. , 1
4. ,