

## DAMPERS FOR EARTHQUAKE PROTECTION AND VIBRATION CONTROL

- Buildings;
- Structures;
- Bridges;
- Equipment.

• United States

• Denmark

• Turkey

• Greece

• Middle East

• Japan  
eg. Japan's Highest Skyscraper

• China

• India

• Chile

# REFERENCES

# WORLDWIDE EXPERIENCE

# SINCE 2000

# BRACING SUPERSTRUCTURE



## HOSPITAL WITH 800 BEDS

- 17 floors;
- Damper capacity: 300 – 500 kN;
- Total number: 348 dampers.

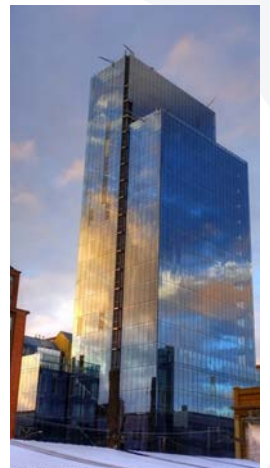
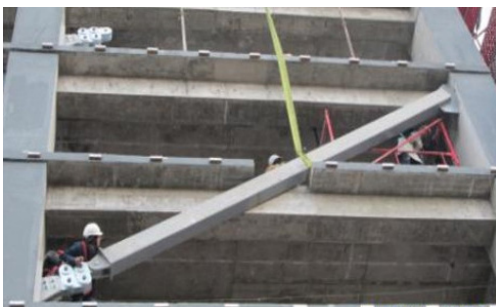
## RETROFITTING OF BANK AND OFFICE BUILDING

- 20 floors;
- Damper capacity: 160 – 400 kN;
- Total number: 180 dampers.



## TORRE CAPITAL BUILDING

- 24 floors;
- Damper capacity: 800 – 1100 kN;
- Total number: 20 double story braces.





# BRACING SUPERSTRUCTURE

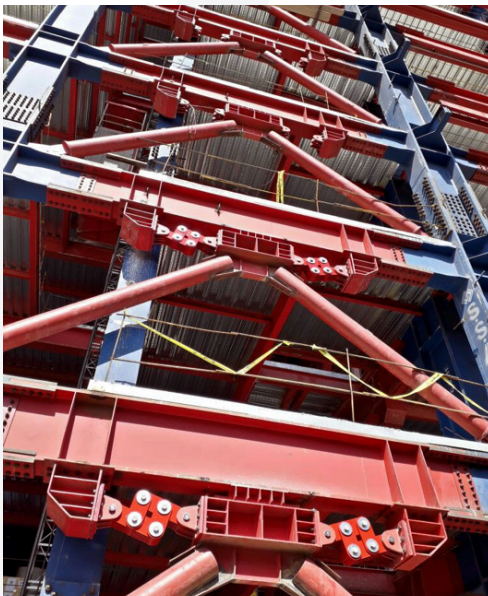


## JAPAN – ABENO HARUKAS – TALLEST BUILDING IN JAPAN

- 62 floors, 300 meters tall;
- Damper capacity: 1500 – 5000 kN;
- Total number: 108 dampers.

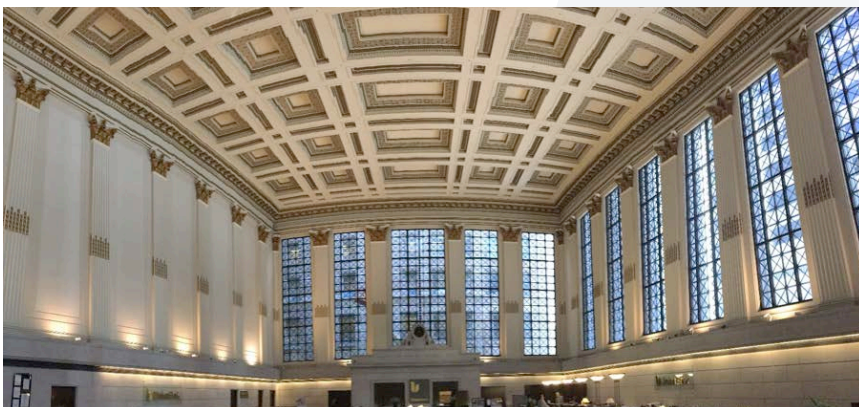
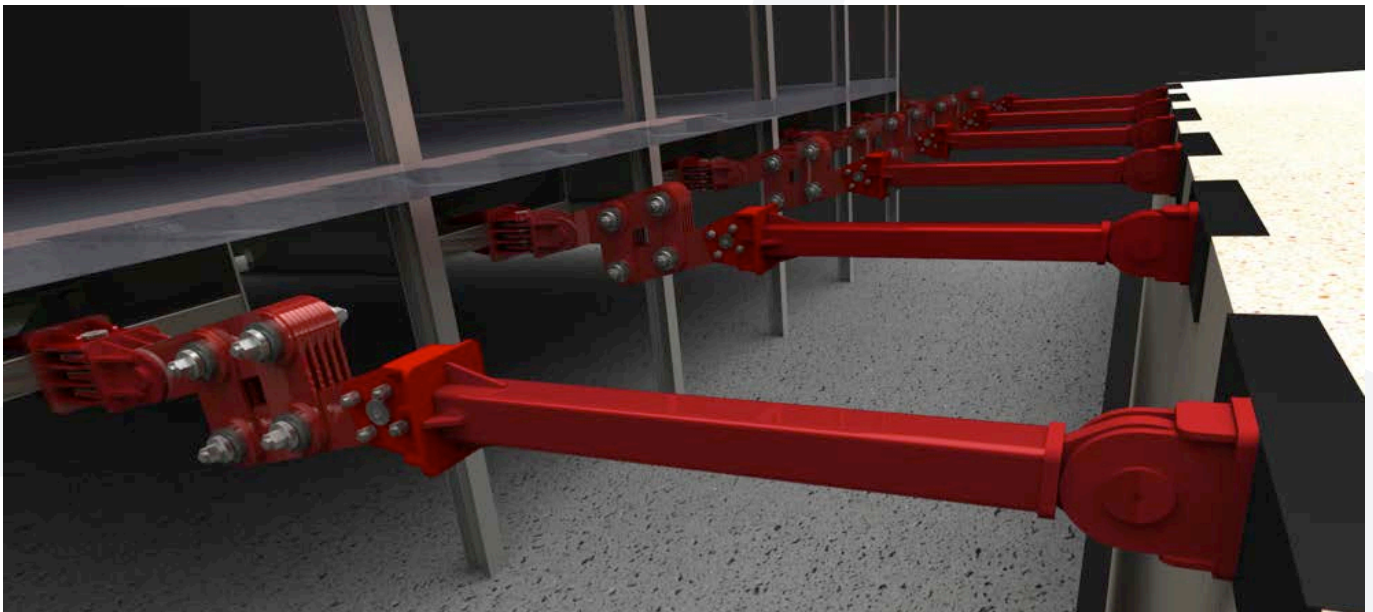
## OFFICE BUILDING

- 33 floors;
- Damper capacity: 400 – 800 kN;
- Total number: 170 dampers.





# FRICTION BASED STRUT



## CALIFORNIA BANK

- 22 floors, 95 meters tall;
- Damper capacity: 1500 kN;
- Displacement: +/- 245 mm;
- Total number: 8 large dampers with struts.



# TOGGLE BRACING, CONCRETE SHEAR WALL RETROFIT



## SCHOOL BUILDING RETROFIT (LOW-RISE CONCRETE SHEAR-WALL)

- First and second project in a program to retrofit schools and offices in South Korea;
- 4 floors;
- Damper capacity: 300 kN;
- Total number: 20 dampers.

## INDUSTRIAL APPLICATIONS

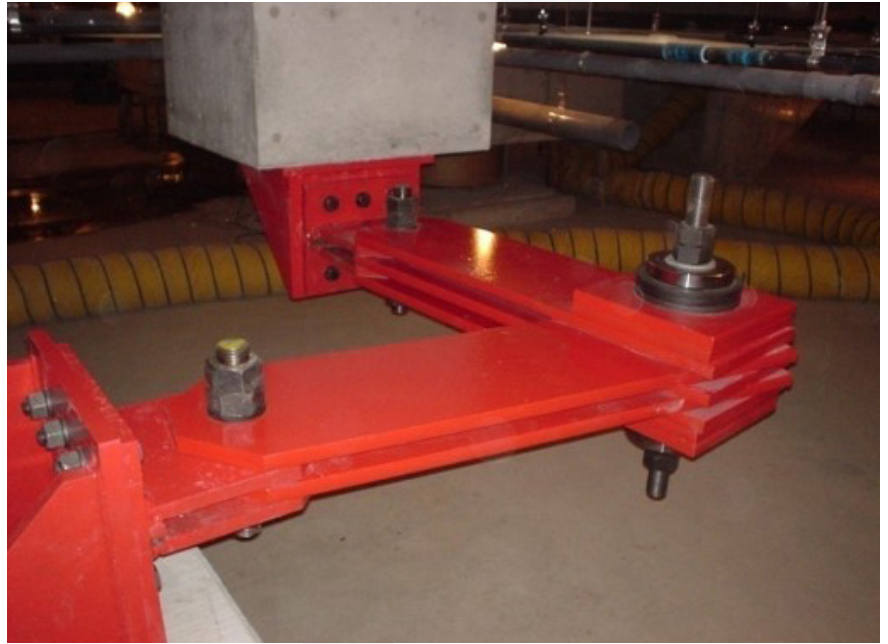


## CEMENT PLANT IN GREECE

- Heavy duty dampers;
- Robust performance in corrosive environment;
- Damper capacity: 250 kN, +/- 400 mm.



# BASE ISOLATED BUILDINGS



## SUPPLEMENTARY DAMPING FOR RUBBER BEARING BASE ISOLATION

- 7 projects were done in Japan;
- Dampers were installed to protect high-rise buildings as well as laboratories and their equipment;
- Displacement: +/- 600 mm;
- Capacity: 150 kN.



## MOMENT FRAME STRENGTHENING



### OFFICE BUILDING IN JAPAN

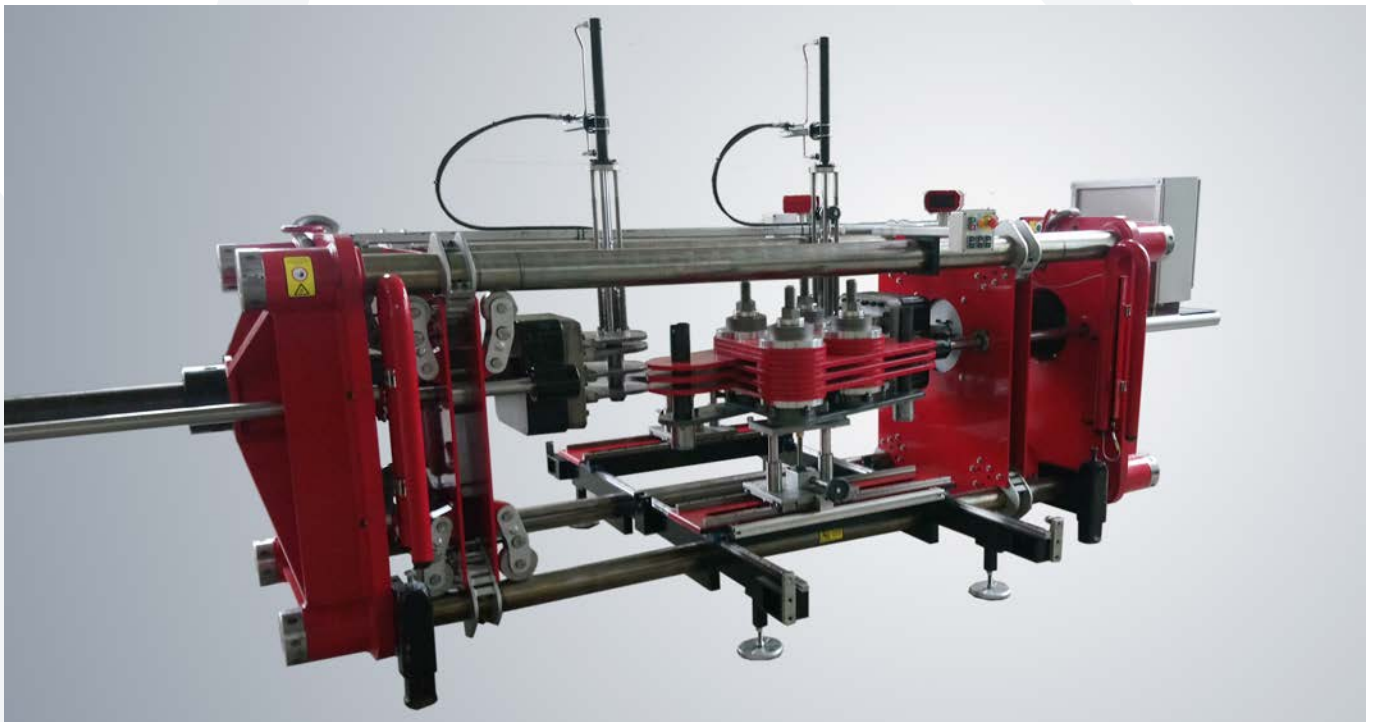
- Damper capacity: 70 kN (up to 500 kN feasible);
- Total number Units: 24.



### RETROFITTED PRECAST STRUCTURES IN TURKEY

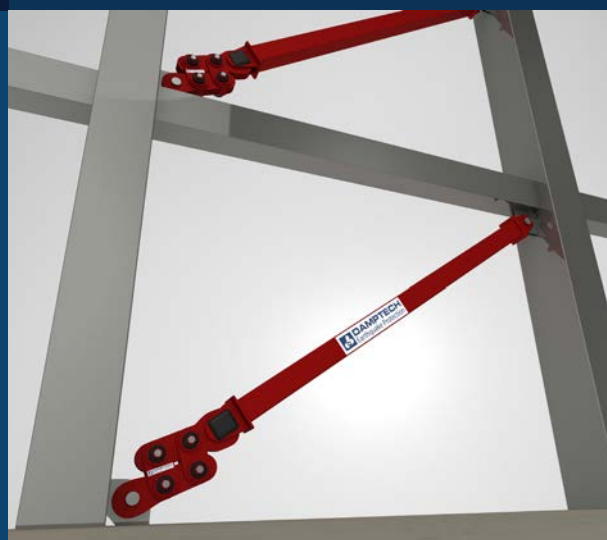
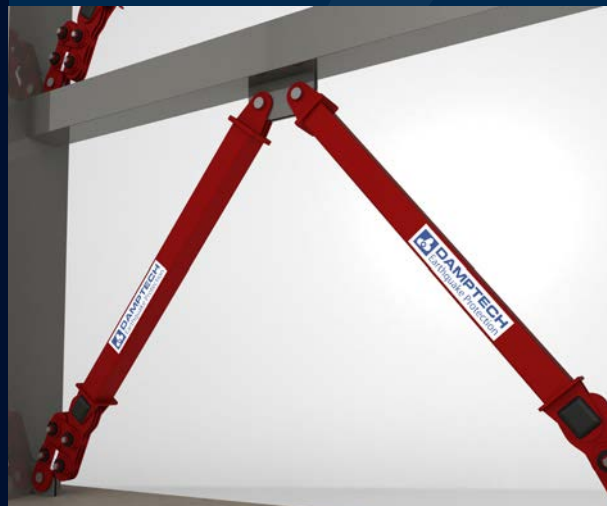
## QUALITY CONTROL AND PRODUCTION MA-

- Automated assembly and testing machine is used to assure the quality and capacity of each damper.



## ADVANTAGES OF DAMPTECH DAMPERS:

- Reliable performance over lifetime of structure;
- Effective damping of up to 50%;
- Standard capacities vary from 200 to 2000 kN;
- Large capacity is up to 10 MN;
- High flexibility on stroke;
- Large displacements of  $\pm 1500$  mm are available for base isolation;
- Ideal for retrofitting;
- Lower strength requirements;
- Easy installation;
- Worldwide patents and 20 years of experience



DAMPTECH  
WWW.DAMPTECH.COM  
MAIL.: INFO@DAMPTECH.COM  
TEL.: +45 4525 1725