

Structural Applications of Fluid Viscous Dampers

SUMMARY	
Total Number of Structures =	339
Buildings =	231
Bridges =	96
Other =	13
Total Number of Dampers =	12,282

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Barwon Heads Bridge	Australia/Victoria	Taylor Fluid Dampers Total: 10 405kN ± 50mm stroke	2010	Seismic	Lock-up devices used to limit bridge deck displacements for a new highway bridge with timber piers.
Meguro Gajoen Extension Project	Japan/Tokyo	Taylor Fluid Dampers Total: 72 1000kN ± 50mm stroke 1500kN ± 50mm stroke 2000kN ± 50mm stroke	2010	Seismic	New construction, 16-story steel and concrete frame office/hotel/parking structure uses dampers to dissipate earthquake energy.
Kasumigaseki 3 Chome Project	Japan/Tokyo	Taylor Fluid Dampers Total: 64 1000kN ± 50mm stroke 1500kN ± 50mm stroke	2010	Seismic	New construction, 17-story steel frame office/parking structure uses dampers to dissipate earthquake energy.
250 West 55th Street	USA/New York, NY	Taylor Fluid Dampers Total: 7 1690 kN ± 100 mm stroke	2009	Wind	Custom high capacity metal bellows dampers used as part of an outrigger system in a new 39- story all glass exterior office building to reduce wind motion.
WRCT Project	USA/Boone County, KY	Taylor Fluid Dampers Total: 2 750 kN ± 100 mm stroke	2009	Seismic	Devices used to provide dynamic force transfer across thermal expansion joint of the supporting structure for this elevated Western Regional Conveyance Tunnel.
US Dept. of Interior Bureau of Reclamation - Utah Projects Office Complex	USA/Provo, UT	Taylor Fluid Dampers Total: 9 445kN ± 100mm stroke 245kN ± 75mm stroke	2009	Seismic	Retrofit of an office complex. Dampers and lock-up devices used in diagonal braces to dissipate earthquake energy and reduce displacement.
LAX Theme Building	USA/Los Angeles, CA	Taylor Fluid Dampers Total 8 555 kN ± 150mm stroke	2009	Seismic	Retrofit of an elevated restaurant supported by four curved legs. Dampers used as part of a mass damper system to control movement of the mass block during an earthquake.

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100 International Drive - Steel warehouse	USA/East Hartford, CT	Taylor Fluid Dampers Total: 2 330 kN ± 100 mm stroke	2009	Seismic	Single-story steel framed warehouse building with plan dimensions of 676' x 450'. Dampers transfer loads across expansion joint at diaphragm chord trusses.
T.F. Green Airport Parking Garage	USA/Providence, RI	Taylor Fluid Dampers Total: 64 135 kN ± 32 mm stroke 270 kN ± 75 mm stroke	2009	Seismic	Located in Warwick, near Providence, RI, this airport parking garage uses dampers to transfer loads across expansion joints, thereby reducing the large seismic expansion joint/gap requirements.
Aircraft Hanger	USA/Hawthorne, CA	Taylor Fluid Dampers Total: 160 900 kN ± 100 mm stroke	2009	Seismic	Voluntary seismic upgrade of an aircraft hangar building using dampers in double-diagonal braces to provide seismic energy dissipation.
865 Market Street - San Francisco Centre	USA/San Francisco, CA	Taylor Fluid Dampers Total: 50 2000 kN ± 125 mm stroke 2000 kN ± 165 mm stroke	2009	Seismic	Voluntary Seismic upgrade of existing multi-story Nordstrom Store in a San Francisco downtown shopping center mall. Dampers in diagonal braces provide seismic energy dissipation.
3300 Hyland Ave – Abraxis Biosciences	USA/Costa Mesa, CA	Taylor Fluid Dampers Total: 44 1000 kN ± 100 mm stroke	2009	Seismic	Seismic upgrade of 3-story existing structure containing offices on the first and third floors and a state-of-the-art upgraded laboratory on the second floor. Dampers in double-diagonals provide seismic energy dissipation.
IETMC	USA/Fontana, CA	Taylor Fluid Dampers Total: 8 1500 kN ± 610 mm stroke	2009	Seismic	New Caltrans District 8 Inland Empire Transportation Management Center with 24/7 Emergency traffic response and management facilities uses rubber isolators and Taylor dampers to meet immediate occupancy criteria in this 2-story steel structure
Dubai Racetrack Stadium	United Arab Emirates/Dubai	Taylor Fluid Dampers Total: 108 885 kN ± 50 mm stroke 1280 kN ± 50 mm stroke 1370 kN ± 50 mm stroke	2009	Wind	New stadium utilizing 36 Tuned Mass Dampers for the reduction of wind vibrations in large cantilevered roof truss sections.
Meixihe Bridge	China/ Chongqing	Taylor Fluid Dampers Total: 4 1750kN ± 250mm stroke	2009	Seismic	Retrofit of a 1990 vintage suspension bridge with a 222m main span. Dampers used to reduce displacements caused by earthquakes.
Nanping Mingjian Bridge	China/Fujian	Taylor Fluid Dampers Total: 4 1400kN ± 500mm stroke	2009	Seismic	Cable-stayed bridge uses dampers between bridge deck and piers to control movements caused by earthquakes.
Ningbo Yongjiang Bridge	China/Ningbo	Taylor Fluid Dampers Total: 8 1800kN ± -550mm stroke	2009	Seismic	Cable-stayed bridge uses dampers between bridge deck and piers to control movements caused by earthquakes.

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Xinjiang Guozili Bridge	China/Xinjiang	Taylor Fluid Dampers Total: 8 1100kN ± 400mm stroke 1200kN ± 500mm stroke	2009	Seismic	Cable-stayed bridge uses dampers between bridge deck and piers to control movements caused by earthquakes.
Nihonbashi Nomura Project	Japan/Tokyo	Taylor Fluid Dampers Total: 52 1000kN ± 50mm stroke 1500kN ± 50mm stroke 2000kN ± 50mm stroke	2009	Seismic	New construction, 21-story steel frame office/commerce facility/parking uses dampers to dissipate earthquake energy.
Hydra Waves	Mexico/Mazatlan	Taylor Fluid Dampers Total: 18 680kN ± 50mm stroke	2009	Seismic	New structure use dampers to absorb earthquake energy and reduce deflection and stress.
Tauranga Harbour Link Bridge	New Zealand/Tauranga	Taylor Fluid Dampers Total: 21 980kN ± 175mm stroke 1470kN ± 175mm stroke 1750kN ± 225mm stroke	2009	Seismic	New four lane highway bridge use Lock-Up Devices with force limiting devices to control bridge deck movement during seismic events.
ASE I – Mihai Eminescu Project	Romania/Bucharest	Taylor Fluid Dampers Total: 142 1000 kN ± 100 mm stroke 100 kN ± 100 mm stroke	2009	Seismic	Retrofit of a historic building with dampers in diagonal braces to provide seismic energy dissipation.
TSMC Fab #12 P5	Taiwan/Hsin Chu City	Taylor Fluid Dampers Total: 6 2000 kN ± 75 mm stroke	2009	Seismic	Retrofit of a semiconductor processing plant uses dampers to dissipate seismic energy and micro-vibrations.
Uni-President B8 Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 336 600 kN ± 75 mm stroke	2009	Seismic	Known as Taipei Hsin-Yi Project, this new 22-story reinforced concrete building uses dampers in chevron braces to dissipate seismic energy.
FDS Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 6 500 kN ± 75 mm stroke	2009	Seismic	Dampers installed in RC supporting wall in a new reinforced concrete building.
Farglory H61 Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 12 500kN ± 75mm stroke	2009	Seismic	Dampers installed in RC supporting wall in a new reinforced concrete building.
Farglory H63 Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 52 500kN ± 75mm stroke	2009	Seismic	Dampers used in chevron bracing elements in a new 15-story reinforced concrete building.

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Farglory H65 Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 46 500kN ± 75mm stroke	2009	Seismic	Dampers used in chevron bracing elements in a new 14-story reinforced concrete building.
Farglory H69	Taiwan/Taipei	Taylor Fluid Dampers Total: 54 500 kN ± 75 mm stroke	2009	Seismic	Dampers installed in RC supporting wall in a new 14-story reinforced concrete building.
Farglory H70 Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 20 500 kN ± 75 mm stroke	2009	Seismic	New 13-story steel reinforced concrete residential building use dampers in chevron braces to dissipate seismic energy.
Ruentex Wan-Shi Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 8 2000kN ± 500mm stroke	2009	Seismic	Dampers used as part of a base isolation system for a new building. Dampers provide energy dissipation and reduce displacement required for the isolation system.
Huaku Academia Sinca Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 10 100kN ± 75mm stroke	2009	Seismic	Dampers used in chevron bracing elements in a new 15-story reinforced concrete building.
Sunrise Golf and Country Club	Taiwan/Taipei	Taylor Fluid Dampers Total: 104 500kN ± 75mm stroke	2009	Seismic	Dampers used in chevron bracing elements to dissipate earthquake energy in a new 33-story steel frame residential building.
Jee Tai Buildings	Taiwan/Taipei	Taylor Fluid Dampers Total: 20 300kN ± 59mm stroke 500kN ± 75mm stroke 750kN ± 75mm stroke	2009	Seismic	Retrofit of multiple reinforced concrete buildings uses dampers for seismic energy dissipation.
Huaku Ji-Lin Project A	Taiwan/Taipei	Taylor Fluid Dampers Total: 8 1000kN ± 75mm stroke	2009	Seismic	Dampers used in chevron bracing elements in a new reinforced concrete building.

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Jiun-Yi Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 10 500 kN ± 75 mm stroke	2009	Seismic	Dampers installed in RC supporting wall in a new 15-story reinforced concrete building to dissipate seismic energy.
KwanFon Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 4 500 kN ± 75 mm stroke	2009	Seismic	Dampers installed in RC supporting wall in a new reinforced concrete building.
Aratsu Bridge	Japan/Fukuoka	Taylor Fluid Dampers Total: 4 2900 kN ± 180 mm stroke 2300 kN ± 180 mm stroke	2009	Seismic	Retrofit of cable-stayed bridge, length is 345m, uses dampers between pier and deck to control seismic movements.
Nagoya-Port Government Office Main Building	Japan/Nagoya	Taylor Fluid Dampers Total: 20 500 kN ± 50 mm stroke	2009	Seismic	Retrofit of 15,264 square meter, 9-story reinforced concrete building. Dampers used in diagonal braces to dissipate earthquake energy.
Jusan 1 st Bridge	South Korea/Hwasun	Taylor Fluid Dampers Total: 8 500 kN ± 200 mm stroke	2009	Seismic	Seismic retrofit of a 240 m multi-span PSC beam bridge using dampers
Jusan 2 nd Bridge	South Korea/Hwasun	Taylor Fluid Dampers Total: 4 500 kN ± 200 mm stroke	2009	Seismic	Seismic retrofit of a 180 m multi-span PSC beam bridge using dampers
Goko Bridge	South Korea/Yeongi	Taylor Fluid Dampers Total: 4 500 kN ± 100 mm stroke	2009	Seismic	Seismic retrofit of a 210 m multi-span PSC beam bridge using dampers
Namhae Grand Bridge	South Korea/Namhae	Taylor Fluid Dampers Total: 12 500 kN ± 200 mm stroke	2009	Seismic	Seismic retrofit of a 660 m (main span 404m) suspension bridge using dampers
Eommi 2 nd Bridge	South Korea/Gwangju	Taylor Fluid Dampers Total: 4 400 kN ± 100 mm stroke	2009	Seismic	Seismic retrofit of a 135 m multi-span PSC box girder bridge using dampers
Kimpo Airport Phase II	South Korea/Seoul South Korea/Hongsung	Taylor Fluid Dampers Total: 8 500 kN ± 100 mm stroke	2009	Seismic	Retrofit of existing terminal building. Dampers installed across expansion joints of 3-story concrete frame building to dissipate seismic energy.

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Hongsungwasun Bridge	South Korea/Hongsung	Taylor Fluid Dampers Total: 4 850 kN ± 120 mm stroke	2008	Seismic	Seismic retrofit of a 300 m multi-span steel box girder and PSC beam bridge using dampers
Sojung Grand Bridge	South Korea/Yoengi	Taylor Fluid Dampers Total: 6 850 kN ± 100 mm stroke	2008	Seismic	Seismic retrofit of a 500 m multi-span steel box girder bridge using dampers
Watan Bridge	South Korea/Yeonggwang	Taylor Fluid Dampers Total: 4 850 kN ± 100 mm stroke	2008	Seismic	Seismic retrofit of a 380 m multi-span steel box girder bridge using dampers
Namgang Bridge	South Korea/Hamyang	Taylor Fluid Dampers Total: 2 850 kN ± 100 mm stroke	2008	Seismic	Seismic retrofit of a 240 m multi-span steel box girder bridge using dampers
Ansungchun Bridge	South Korea/Ansung	Taylor Fluid Dampers Total: 10 1000 kN ± 100 mm stroke	2008	Seismic	Seismic retrofit of a 450 m multi-span PSC beam bridge using dampers
California Dept. of Transportation District 4 Headquarters	USA/Oakland, CA	Taylor Fluid Dampers Total: 231 1000 kN ± 125 mm stroke 2000 kN ± 125 mm stroke 3000 kN ± 125 mm stroke	2008	Seismic	Retrofit of 15-story steel moment frame structure built in 1991. Dampers used in diagonal braces to dissipate seismic energy.
Atlanta Botanical Garden	USA/Atlanta, GA	Taylor Fluid Dampers Total: 4 11 kN ± 75 mm stroke	2008	Pedestrian	Custom pre-tensioned spring loaded dampers used to control pedestrian induced vibrations in an elevated walkway located in the tree canopy.
Citycenter Project Pedestrian Bridge	USA/Las Vegas, NV	Taylor Fluid Dampers Total: 6 TMD Systems	2008	Pedestrian	Group of three new pedestrian bridges utilize Taylor tuned mass dampers to reduce pedestrian-induced vibrations.
Roosevelt Island Lift Bridge	USA/New York, NY	Taylor Fluid Dampers Total: 8 267 kN 560 mm stroke	2008	Kinetic Energy of Moving Bridge	Retrofit of a vertical lift bridge for protection from runaway motors and brake failures.
Solomon R. Guggenheim Museum	USA/New York, NY	Taylor Fluid Dampers Total: 54 20 kN ± 30 mm stroke	2008	Wind & Traffic Vibration	Retrofit of world-famous Frank Lloyd Wright Building first opened in 1959. First building application of hermetic metal bellows dampers, providing broad-band vibration control of concrete outer walls. Dampers installed in radial braces on top floor.
Pengxihe River Bridge	China/Changqing	Taylor Fluid Dampers Total: 4 1600 kN ± 200 mm stroke	2008	Seismic	632m main span cable-stayed bridge uses dampers between the bridge deck and piers to control seismic/wind movement.

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Jiangjin Guanyin Bridge	China/Chongqing	Taylor Fluid Dampers Total: 4 1200 kN ± 200 mm stroke	2008	Seismic	Major cable-stayed bridge uses dampers to reduce displacement caused by earthquakes.
Yuzui Yangtze River Bridge	China/Chongqing	Taylor Fluid Dampers Total: 4 1500 kN ± 550 mm stroke	2008	Seismic	616m main span cable-stayed bridge uses dampers between tower and deck to allow free thermal movement and control seismic movements.
Hangzhou Jiangdong Bridge I	China/Hangzhou	Taylor Fluid Dampers Total: 4 2000 kN ± 300 mm stroke	2008	Seismic	260m main span suspension bridge uses dampers between the bridge deck and piers to control seismic/wind movement.
Hangzhou Jiangdong Bridge II	China/Hangzhou	Taylor Fluid Dampers Total: 4 2000 kN ± 300 mm stroke	2008	Seismic	260m main span Suspension bridge uses dampers between the bridge deck and piers to control seismic/wind movement.
Jiangyin Bridge	China/Jiangyin	Taylor Fluid Dampers Total: 8 8.9 kN ± 25 mm stroke	2008	Bridge vibration	8 dampers for two bridge inspection vehicles (inspection travelers)
Jingtang Bridge	China/Ningbo/Zhejiang	Taylor Fluid Dampers Total: 4 2750 kN ± 350 mm stroke	2008	Seismic & Wind	World's 9 th longest cable-stayed bridge uses dampers on the main span to control seismic/wind movements.
Shanghai Hanger	China/Shanghai	Taylor Fluid Dampers Total: 8 1300 kN ± 100 mm stroke	2008	Seismic	156.68m Span Hanger, new construction. 8 dampers in chevron braces to dissipate seismic energy.
Shanxi Xianshen Bridge	China/Shanxi, Jinyang	Taylor Fluid Dampers Total: 9 1500 kN ± 300 mm stroke	2008	Seismic	150m height single tower cable-stayed bridge uses dampers between the bridge deck and piers to control seismic/wind movement.
Suramadu Bridge	Indonesia/Surabaya Madura	Taylor Fluid Dampers Total: 4 2400 kN ± 450 mm stroke	2008	Seismic	445m main span cable-stayed bridge uses dampers with end of travel bumpers between the bridge deck and piers to control seismic/wind movement.
Steel Mill Project	Italy/Udine	Taylor Lock-Up Devices Total: 8 200 kN ± 75 mm stroke	2008	Seismic	Expansion of an existing steel structure. Lock Up Devices used to control seismic movement while allowing free thermal movement.
Mizunami Transformer Station Tower	Japan/Gifu	Taylor Fluid Dampers Total: 4 16.5 kN ± 200 mm stroke	2008	Seismic	Seismic retrofit of wireless station steel tower. Dampers used in a TMD system to dissipate seismic energy. All stainless steel dampers.
Ooigawa Transformer Station Tower	Japan/Shizuoka	Taylor Fluid Dampers Total: 4 16.5 kN ± 200 mm stroke	2008	Seismic	Seismic retrofit of wireless station steel tower. Dampers used in a TMD system to dissipate seismic energy. All stainless steel dampers.

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Taketoyo Thermal Power Station Tower	Japan/Aichi	Taylor Fluid Dampers Total: 4 16.5 kN ± 200 mm stroke	2008	Seismic	Seismic retrofit of wireless station steel tower. Dampers used in a TMD system to dissipate seismic energy. All stainless steel dampers.
Kimpo Airport Phase I	Korea/Seoul	Taylor Fluid Dampers Total: 4 500 kN ± 100 mm stroke	2008	Seismic	Retrofit of an existing building. Dampers installed across expansion joints of 3-story concrete frame building to dissipate seismic energy for Korea Airports Corporation.
Gang Dong Grand Bridge	Korea/Seoul	Taylor Fluid Dampers Total: 12 2000 kN ± 300 mm stroke	2008	Seismic	Seismic retrofit of a 1126 meter multi-span PSC box girder bridge with dampers the Korea Expressway Corporation.
Kyung Ho 2 nd Bridge	Korea/Sancheong	Taylor Fluid Dampers Total: 4 750 kN ± 250 mm stroke	2008	Seismic	Seismic retrofit of a 340 meter multi-span PSC Box bridge with dampers for the Korea Expressway Corporation.
Kyung River 6 th Bridge	Korea/Sancheong	Taylor Fluid Dampers Total: 8 1500 kN ± 200 mm stroke	2008	Seismic	Seismic retrofit of a 630 meter multi-span PSC Box bridge with dampers for the Korea Expressway Corporation.
Hang Jyung Bridge	Korea/Suncheon	Taylor Fluid Dampers Total: 10 1500 kN ± 250 mm stroke	2008	Seismic	Seismic retrofit of a 630 meter multi-span PSC Box bridge with dampers for the Korea Expressway Corporation.
Marena Project	Mexico/Acapulco	Taylor Fluid Dampers Total: 52 600 kN ± 50 mm stroke 570 kN ± 50 mm stroke	2008	Seismic	New resort/hotel/condominium complex uses dampers to dissipate seismic energy.
Academy for Economical Studies II Project	Romania/Bucharest	Taylor Fluid Dampers Total: 18 1500 kN ± 500 mm stroke	2008	Seismic	Retrofit of a building with 80 isolation bearings and 18 dampers.
Academy for Economical Studies - Sports Complex	Romania/Bucharest	Taylor Fluid Dampers Total: 6 300 kN ± 75 mm stroke	2008	Seismic	Retrofit of a building with dampers located at the roof to dissipate earthquake energy.
TSMC Fab #12 P4	Taiwan/Hsin Chu City	Taylor Fluid Dampers Total: 18 2000 kN ± 75 mm stroke	2008	Seismic	Retrofit of a semiconductor processing plant uses dampers to dissipate seismic energy and micro-vibrations.
Criminal Investigation Bureau Taichung	Taiwan/Taichung	Taylor Fluid Dampers Total: 4 392 kN ± 50 mm stroke 784 kN ± 75 mm stroke	2008	Seismic	15-story steel braced frame building uses a combination of BRBs and dampers in diagonal braces for seismic energy dissipation.

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Hung-Feng Nei-Hu Residence	Taiwan/Taipei	Taylor Fluid Dampers Total: 12 500 kN ± 75 mm stroke	2008	Seismic	New 5-story residential building uses dampers in reinforced concrete supporting walls to dissipate seismic energy.
Fu-Shi Tu-Cheng Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 24 500 kN ± 75 mm stroke	2008	Seismic	New 12-story residential building uses dampers in reinforced concrete supporting walls to dissipate seismic energy.
Ya-Ting Chung-Ho Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 16 500 kN ± 75 mm stroke	2008	Seismic	New 14-story residential building uses dampers in reinforced concrete supporting walls to dissipate seismic energy.
Mei-Feng Residential Building	Taiwan/Taipei	Taylor Fluid Dampers Total: 32 1000 kN ± 60 mm stroke	2008	Seismic	New 16-story steel residential building uses dampers in double A-shape frames to dissipate seismic energy.
Farglory Fortuna H62	Taiwan/Taipei	Taylor Fluid Dampers Total: 80 500 kN ± 75 mm stroke	2008	Seismic	Two new 16-story steel reinforced concrete residential building use dampers in double A-shape frames to dissipate seismic energy.
Farglory Twin-Towers H40	Taiwan/Taipei	Taylor Fluid Dampers Total: 162 500 kN ± 60 mm stroke 800 kN ± 75 mm stroke	2008	Seismic	Two new 25-story steel reinforced concrete residential building use dampers in double A-shape frames to dissipate seismic energy.
Hung Poo Construction / KIMZO New Trump	Taiwan/Taipei	Taylor Fluid Dampers Total: 24 1000 kN ± 100 mm stroke	2008	Seismic	New 19-story residential building uses dampers in reinforced concrete supporting walls to dissipate seismic energy.
Kindom Kui-Lin Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 24 1000 kN ± 100 mm stroke	2008	Seismic	New 19-story steel reinforced concrete residential building with dampers to dissipation seismic energy.
Uni-President Taipei Transfer Post (A3)	Taiwan/Taipei	Taylor Fluid Dampers Total: 124 600 kN ± 75 mm stroke 600 kN ± 100 mm stroke	2008	Seismic	New 31-story steel structure with dampers to improve structural performances. Dampers are installed in diagonal braces and A-shape supporting frames.
Kelti Hsin-Yi Building	Taiwan/Taipei	Taylor Fluid Dampers Total: 80 1400 kN ± 100 mm stroke 1500 kN ± 100 mm stroke	2008	Seismic	New 14-story steel office building in Taipei Project. Viscous dampers are used for energy dissipation. Dampers are installed in diagonal braces.
Chiyoda Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 16 980 kN ± 60 mm stroke	2008	Seismic	16-story reinforced concrete moment frame building uses dampers in double A-shape frames to dissipate seismic energy.

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Twin Oak Garden Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 32 980 kN ± 60 mm stroke	2008	Seismic	16-story reinforced concrete moment frame building uses dampers in double A-shape frames to dissipate seismic energy.
Far Glory Twin Towers	Taiwan/Taipei	Taylor Fluid Dampers Total: 162 490 kN ± 60 mm stroke 785 kN ± 75 mm stroke	2008	Seismic	Two 24-story residential buildings use dampers in double A-shape frames to dissipate seismic energy.
Mei-Feng Residential Building	Taiwan/Taipei	Taylor Fluid Dampers Total: 32 980 kN ± 60 mm stroke	2008	Seismic	19-story residential building uses dampers in A-shape frames to dissipate seismic energy.
Mills Peninsula Hospital	USA/Burlingame, CA	Taylor Fluid Dampers Total: 32 1225 kN ± 762 mm stroke	2007-2008	Seismic	450,000 square foot replacement hospital for Peninsula Medical Center with 243 beds. Dampers used with base isolation system.
Cumberland River Pedestrian Bridge	USA/Nashville, TN	Taylor Fluid Dampers Total: 5 TMD Systems	2007	Pedestrian	Five TMD Systems used to control lateral and vertical vibrations caused by pedestrian traffic.
KDDI Tama Fourth Network Center 1 st Station	Japan/Tokyo	Taylor Fluid Dampers Total: 28 1450 kN ± 610 mm stroke	2007	Seismic	6-story, 24,000 square meter telephone network center is base isolated with dampers to reduce seismic movement and provide energy dissipation.
Tres Mares Residences	Mexico/Puerto Vallarta	Taylor Fluid Dampers Total: 30 900 kN ± 100 mm stroke 1450 kN ± 100 mm stroke	2007	Seismic	27-story, 40,200 square meter condominium building with concrete columns and steel beams. Dampers used in diagonal braces for seismic energy dissipation.
TSMC Fab #14	Taiwan/Taipei	Taylor Fluid Dampers Total: 20 2000 kN ± 75 mm stroke	2007	Seismic	Retrofit of a semiconductor processing plant uses damper to dissipate seismic energy and micro-vibrations.
Dong-Teng Project	Taiwan/Taipei	Taylor Fluid Dampers Total: 32 490 kN ± 75 mm stroke	2007	Seismic	15-story steel braced frame residential building uses dampers in A-frames to dissipate seismic energy.
Jin Nam 3 rd Bridge	Korea/Mungyeong	Taylor Fluid Dampers Total: 10 850 kN ± 100 mm stroke	2007	Seismic	Seismic retrofit of a 680 meter multi-span steel box girder and PSC Beam bridge with dampers for the Ministry of Land Transport and Maritime Affairs.
New Yang Soo Bridge	Korea/Yangpyeong	Taylor Fluid Dampers Total: 34 2000 kN ± 100 mm stroke 850 kN ± 100 mm stroke	2007	Seismic	Seismic retrofit of a 2180 meter multi-span steel box girder and PSC Beam bridge with dampers for the Ministry of Land Transport and Maritime Affairs.

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Gang Hwa Grand Bridge	Korea/Ganghwa	Taylor Fluid Dampers Total: 8 2000 kN ± 120 mm stroke	2007	Seismic	Seismic retrofit of a 780 meter multi-span steel box girder bridge with dampers for the Ministry of Land Transport and Maritime Affairs.
Clerkenwell Road Bridge	UK/London	Taylor Fluid Dampers Total: 2 582 kN ± 100 mm stroke	2007	Seismic	Strengthening Project – Lock-up devices used to control seismic movement while allowing free thermal movement.
Coker Structure	Venezuela/Barcelona	Taylor Fluid Dampers Total: 26 50 kN ± 150 mm stroke	2007	Seismic	Dampers used to reduce vibrations caused by a chemical reaction in a large vessel.
131 South Rodeo Drive	USA/Beverly Hills, CA	Taylor Fluid Dampers Total: 18 2000 kN ± 75 mm stroke	2007	Seismic	Voluntary seismic retrofit uses dampers in diagonal bracing elements for seismic energy dissipation.
Don Pedro High School	USA/Groveland, CA	Taylor Fluid Dampers Total: 8 107 kN ± 75 mm stroke	2007	Seismic	New school athletic complex uses dampers in chevron braces to dissipate seismic energy.
Tioga High School	USA/Groveland, CA	Taylor Fluid Dampers Total: 8 107 kN ± 75 mm stroke	2007	Seismic	New school athletic complex uses dampers in chevron braces to dissipate seismic energy.
Sutter Gould Medical Office Building	USA/Modesto, CA	Taylor Fluid Dampers Total: 40 712 kN ± 75 mm stroke	2007	Seismic	4-story, 13,400 square meter medical office building. Steel construction with dampers in diagonal bracing elements for seismic energy dissipation.
Beijing 7 Star Morgan Plaza Hotel	China/Beijing	Taylor Fluid Dampers Total: 108 1000 kN ± 40 mm stroke 1000 kN ± 100 mm stroke 1500 kN ± 150 mm stroke	2007	Seismic & Wind	New 40-story building uses a combination of fluid dampers and fluid visco-elastic dampers to reduce seismic and wind vibrations.
Stamford Building	New Zealand/Auckland	Taylor Fluid Dampers Total: 12 25 kN ± 150 mm stroke	2007	Wind	Residential tower uses dampers in a three-mass TMD system to reduce motion caused by wind for comfort level improvements.
Loma Linda University Medical Center	USA/Loma Linda, CA	Taylor Fluid Dampers Total: 10 890 kN ± 100 mm stroke	2007	Seismic	Seismic upgrade of hospital structure uses long fluid viscous dampers in diagonal braces of Buildings A&C.
Whalley Reservoir	Canada/Surrey, BC	Taylor Fluid Dampers Total: 17 1000 kN ± 125 mm stroke	2007	Seismic	Dampers surround this in-ground reservoir to control seismic drift of concrete lid.
Jiangyin Bridge	China/Jiangsu Province	Taylor Fluid Dampers Total: 4 1000 kN ± 1000 mm stroke	2007	Seismic	World's 5 th longest suspension bridge uses dampers mounted vertically at expansion joints to control traffic vibrations.

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Xihoumen Bridge	China/Zhejiang Province	Taylor Fluid Dampers Total: 4 1000 kN ± 1100 mm stroke	2007	Seismic	World's 2 nd longest suspension bridge located at Zhoushan Island uses dampers in the longitudinal direction to dissipate seismic energy.
Cal Poly Pomona Library	USA/Pomona, CA	Taylor Fluid Dampers Total: 12 1335 kN ± 178 mm stroke	2007	Seismic	Seismic retrofit of college library building uses long fluid viscous dampers in diagonal braces.
Doutor Coffee Nagoya Project	Japan/Nagoya City	Taylor Fluid Dampers Total: 2 3000 kN ± 50 mm stroke	2007	Seismic	New 9-story office building (2096 square meters) uses dampers for seismic energy dissipation.
Saitama Citizen Medical Center	Japan/Saitama City	Taylor Fluid Dampers Total: 12 1450 kN ± 610 mm stroke	2007	Seismic	New 6-story hospital (29,320 square meters) uses dampers with base isolation system for seismic energy dissipation.
Minatoku Office Building (Mita 3 Chome project)	Japan/Tokyo-Minato-ku	Taylor Fluid Dampers Total: 32 785 kN ± 100 mm stroke	2007	Seismic	New 13-story office building (17,200 square meters) uses dampers in diagonal braces for seismic energy dissipation.
Starwood Hotel - Sage Hospitality	USA/Portland, OR	Taylor Fluid Dampers Total: 212 445 kN ± 100 mm stroke 670 kN ± 100 mm stroke 890 kN ± 100 mm stroke	2007	Seismic	Remodel and seismic retrofit/upgrade of Meier and Frank Building, floors 6-14. Project uses dampers in chevron braces.
Leona Drive Residence	USA/Beverly Hills, CA	Taylor Fluid Dampers Total: 3 22 kN ± 25 mm stroke	2007	Floor Vibrations	New residence with cantilevers that requires damping for comfort level improvements from floor vibrations.
Shen-Mao Garter Castle Residential Building	Taiwan/Taipei	Taylor Fluid Dampers Total: 32 1000 kN ± 50 mm stroke	2007	Seismic	New 14-story R/C residential building uses 32 dampers in R/C supporting walls and bracing for energy dissipation.
Nordstrom – Santa Barbara Paseo Nuevo Store # 344	USA/Santa Barbara, CA	Taylor Fluid Dampers Total: 38 890 kN ± 100 mm stroke 670 kN ± 100 mm stroke	2007	Seismic	Store remodel includes structural seismic upgrade with dampers used in chevron braces for seismic energy dissipation.
Abe Transformer Station Tower	Japan/Shizuoka Prefecture	Taylor Fluid Dampers Total: 4 16 kN, + 200 mm stroke	2007	Seismic	Seismic retrofit of wireless station steel tower. Dampers used in TMD system to dissipate seismic energy.
Seattle Central Link Light Rail Extension - Section C410	USA/Seattle, WA	Taylor Fluid Dampers Total: 6 2000 kN ± 76 mm stroke 2558 kN ± 76 mm stroke	2007	Seismic	1.7 mile Extension of light rail line to SEA-TAC Int'l airport, uses shock transmission units to control seismic movement/allow free thermal movement.

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NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Port of Seattle South 160 th St. Loop Ramp Light Rail	USA/Seattle, WA	Taylor Fluid Dampers Total: 24 1000 kN ± 100 mm stroke 2000 kN ± 76 mm stroke 2558 kN ± 76 mm stroke	2007	Seismic	New light rail line at SEA-TAC Int'l airport utilizes shock transmission units to control seismic movement while allowing free thermal movement.
Lian-Yun Tai-An Residence	Taiwan/Taipei	Taylor Fluid Dampers Total: 6 1000 kN ± 100 mm stroke	2007	Seismic	New 12-story R/C residential building uses 6 dampers in first floor to dissipate seismic energy.
Huaku Wen-De Residence	Taiwan/Taipei	Taylor Fluid Dampers Total: 24 500 kN ± 60 mm stroke	2007	Seismic	New 14-story R/C residential building uses 24 dampers for seismic energy dissipation.
Huaku Ming-Chiuan Residence	Taiwan/Taipei	Taylor Fluid Dampers Total: 48 1000 kN ± 60 mm stroke	2007	Seismic	New 15 story R/C residential building uses 48 dampers for seismic energy dissipation.
Kindom Millennium Celebrity	Taiwan/Taipei	Taylor Fluid Dampers Total: 12 500 kN ± 50 mm stroke	2007	Seismic	New 27-story steel/concrete residential building located on soft soil of old volcano valley uses dampers for earthquake energy dissipation.
SR 62 Bridge over Wabash River	USA/Posey County, IN	Taylor Fluid Dampers Total: 80 290 kN ± 100 mm stroke 470 kN ± 100 mm stroke	2007	Seismic	Indiana DOT Bridge over Wabash River to White County, Illinois uses Lock-up Devices to control seismic movement while allowing free thermal movement.
Pomeroy-Mason Bridge	USA/Grove City, OH	Taylor Fluid Dampers Total: 96 23 kN, ± 75 mm stroke	2007	Wind/Rain	New cable-stayed bridge. Dampers attached to cable stays to reduce motion induced by a combination of wind and rain.
Sutong Changjiang River Bridge	China/Shanghai	Taylor Fluid Dampers Total: 8 6580 kN, ± 850 mm stroke	2007	Seismic & Wind	World's longest cable-stayed bridge uses special spring dampers on the main span to control seismic/wind movements.
Longhua Songhua Bridge	China/Songyvan, Jilin Province	Taylor Fluid Dampers Total: 16 1800 kN ± 140 mm stroke	2007	Seismic	New 7-span reinforced concrete continuous beam bridge uses Lock-Up Devices to control seismic movement while allowing free thermal movement.
Rainbow Bridge (Nei-Hu Suspension Bridge)	Taiwan/Taipei	Taylor Fluid Dampers Total: 4 500 kN ± 100 mm stroke	2007	Seismic	New steel arch-suspension bridge uses dampers for earthquake energy dissipation.
Nueva Palmira Wharf	Uruguay/Montevideo	Taylor Fluid Dampers Total: 6 900 kN ± 100 mm stroke	2007	Wind & Berthing Loads	New multi-modal harbor port terminal. Dampers used for wind/impact load protection of wharf structure with pile foundations.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Tan Zu/Tzu Chi Hospital	Taiwan/Taichung City	Taylor Fluid Dampers Total: 88 1716 kN ± 750 mm stroke	2007	Seismic	New construction of a 14-story, 145k m ² hospital. Dampers used to add energy dissipation to the base isolation system.
Roslyn Viaduct Bridge Replacement for Route 25A over Hempstead Harbor	USA/Roslyn, NY	Taylor Fluid Dampers Total: 8 2000 kN, ± 280 mm stroke	2007	Seismic	Replacement segmental concrete overpass structure uses fluid viscous dampers for earthquake energy dissipation.
Seattle Central Link Light Rail Section C755	USA/Seattle, WA	Taylor Fluid Dampers Total: 34 1000 kN ± 100 mm stroke 2000 kN ± 76 mm stroke 2558 kN ± 76 mm stroke	2007	Seismic	New light rail line utilizes shock transmission units to control seismic movement while allowing free thermal movement.
Macy's Store - Meier & Frank Building Remodel	USA/Portland, OR	Taylor Fluid Dampers Total: 160 890 kN ± 100 mm stroke 1112 kN ± 100 mm stroke 1335 kN ± 100 mm stroke 1780 kN ± 100 mm stroke	2006-2007	Seismic	Remodel and seismic retrofit/upgrade of Meier and Frank Building floors 1-5. Project uses dampers in chevron braces.
Naval Hospital Bremerton	USA/Bremerton, WA	Taylor Fluid Dampers Total: 88 890 kN ± 100 mm stroke	2006-2007	Seismic	Seismic upgrade of 1960's era, 9-story, 2,500 square meter hospital utilizes dampers in diagonal braces to reduce drift and dissipate seismic energy.
JR Tokai Shin Yokohama Station	Japan/Tokyo	Taylor Fluid Dampers Total: 377 500 kN ± 50 mm stroke 1000 kN ± 50 mm stroke 1500 kN ± 50 mm stroke	2006-2007	Seismic	New 19-story 100,000 square meter steel train station/office/hotel building uses dampers in diagonal braces to dissipate seismic energy.
Rock Church (Nehemiah Project)	USA/San Diego, CA	Taylor Fluid Dampers Total: 2 TMD Systems	2006	Pedestrian Dancing Vibration	Two 10,000 Lbs TMD systems used to dampen vibrations on the main cantilevered balcony in the sanctuary.
Guangzhou Stadium	China/Yixing	Taylor Fluid Dampers Total: 12 1500 kN ± 100 mm stroke	2006	Seismic	New Stadium uses dampers in stadium substructure framing to provide seismic energy dissipation.
Nordstrom – Tyler Mall Store # 325	USA/Riverside, CA	Taylor Fluid Dampers Total: 32 980 kN ±100 mm stroke	2006	Seismic	Store remodel includes structural seismic upgrade with dampers used in chevron braces for seismic energy dissipation.
Nordstrom–South Bay Galleria	USA/Redondo Beach, CA	Taylor Fluid Dampers Total: 16 890 kN ±15 mm stroke	2006	Seismic	Store remodel includes structural seismic upgrade with dampers used in chevron braces for seismic energy dissipation.

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NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Los Angeles California Temple	USA/Los Angeles, CA	Taylor Fluid Dampers Total: 9 360 kN +175/-25 mm stroke	2006	Seismic	Voluntary Seismic upgrade of church steeple (spire) with dampers used in special apparatus for seismic energy dissipation.
Jorge Chavez International Airport Central Tower	Peru/Lima	Taylor Fluid Dampers Total: 42 490 kN ± 100 mm stroke 712 kN ± 100 mm stroke	2006	Seismic	Retrofit of a 10-story R/C central tower structure. Dampers are used in chevron braces to provide seismic energy dissipation.
Deung Sun Bridge	South Korea/Chuncheon	Taylor Fluid Dampers Total: 8 1000 kN ± 100 mm stroke	2006	Seismic	Seismic retrofit of a 2000 meter multi-span steel girder bridge with dampers for the Ministry of Construction & Transportation.
ShinSang # 1 Bridge	South Korea/Daejeon	Taylor Fluid Dampers Total: 8 1000 kN ± 250 mm stroke	2006	Seismic	Seismic retrofit of a 525 meter multi-span steel girder bridge with dampers for the Korea Highway Corporation.
Lee Ho Grand Bridge	South Korea/Yeouju	Taylor Fluid Dampers Total: 4 1000 kN ± 310 mm stroke	2006	Seismic	Seismic retrofit of a 910 meter multi-span steel girder bridge with dampers for the Ministry of Construction & Transportation.
TSMC FAB #7	Taiwan/Hsin Chu City	Taylor Fluid Dampers Total: 16 1000 kN ± 100 mm stroke	2006	Seismic	Retrofit of a semiconductor fabrication plant uses dampers to dissipate seismic energy and micro-vibrations.
Pamunkey River Bascule Bridge	USA/West Point, VA	Taylor Fluid Dampers Total: 4 890 kN, + 400 mm stroke	2006	Kinetic Energy of Moving Bridge	New bascule bridge replaces an aging bridge. Dampers are used to protect the bascule leafs and ensure soft settling.
ITS Kenpo Okubo Union Hall	Japan/Tokyo-Okubo	Taylor Fluid Dampers Total: 18 1425 kN, + 50 mm stroke 1960 kN, + 50 mm stroke 2330 kN, + 50 mm stroke	2006	Seismic	New 7-story office building for Kanto IT software health insurance association. Dampers are used in diagonal braces to dissipate seismic energy.
D-Asset VIII Nishi-Shinjyuku Building	Japan/Tokyo-Shinjyuku	Taylor Fluid Dampers Total: 25 500 kN, + 100 mm stroke	2006	Seismic	New 13-story office building known as D-ASSETVIII. Dampers used in diagonal braces to dissipate seismic energy.
Waldo – Penobscot River Bridge	USA/Verona, ME	Taylor Fluid Dampers Total: 160 9 kN, ± 63 mm stroke	2006	Wind/Rain	New cable-stayed bridge and observation tower uses dampers attached to cable stays to reduce vibration from wind and rain.
Marvell Building # 100, 200 and Connector Building	USA/Santa Clara, CA	Taylor Fluid Dampers Total: 104 890 kN, + 76 mm stroke	2006	Seismic	Seismic upgrade of existing structures and seismic protection of new connecting structure. Dampers used in diagonal braces to dissipate seismic energy.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Marvell Building # 400	USA/Santa Clara, CA	Taylor Fluid Dampers Total: 26 890 kN, + 76 mm stroke 2935 kN, + 76 mm stroke 4380 kN, + 76 mm stroke	2006	Seismic	Seismic upgrade of existing structure. Dampers used in diagonal braces to dissipate seismic energy.
Berryhill Elementary School	USA/Ceres, CA	Taylor Fluid Dampers Total: 8 107 kN, ± 75 mm stroke	2006	Seismic	New school athletic complex uses dampers in chevron braces to dissipate seismic energy.
Four Elementary Schools for the Ceres Unified School District	USA/Ceres, CA	Taylor Fluid Dampers Total: 32 107 kN, ± 75 mm stroke	2006	Seismic	New school athletic complex uses dampers in chevron braces to dissipate seismic energy.
Adkison Elementary School	USA/Ceres, CA	Taylor Fluid Dampers Total: 8 107 kN, ± 75 mm stroke	2006	Seismic	New school athletic complex uses dampers in chevron braces to dissipate seismic energy.
Hidahl Elementary School	USA/Ceres, CA	Taylor Fluid Dampers Total: 8 107 kN, ± 75 mm stroke	2006	Seismic	New school athletic complex uses dampers in chevron braces to dissipate seismic energy.
LaRosa Elementary School	USA/Ceres, CA	Taylor Fluid Dampers Total: 8 107 kN, ± 75 mm stroke	2006	Seismic	New school athletic complex uses dampers in chevron braces to dissipate seismic energy.
926 J Street	USA/Sacramento, CA	Taylor Fluid Dampers Total: 16 1557 kN, ± 75 mm stroke	2006	Seismic	Retrofit of a 1920's vintage, 10,000 square meter concrete office building. Dampers used in diagonal bracing elements to dissipate seismic energy.
Kent Parking Garage	USA/Kent, WA	Taylor Fluid Dampers Total: 16 445 kN ± 100 mm stroke	2006	Seismic	Seismic upgrade of a 3-story concrete parking garage. Dampers used in diagonal braces to dissipate seismic energy.
Bercy Tolbiac Bridge	France/Paris	Taylor Fluid Dampers Total: 4 34 kN ± 65 mm stroke 53 kN ± 65 mm stroke 82 kN ± 25 mm stroke	2006	Pedestrian Traffic	New footbridge uses special metal bellows dampers to reduce vibrations caused by pedestrian traffic.
Chiba Chuo Project (6 th area urban redevelopment project)	Japan/Chiba City	Taylor Fluid Dampers Total: 42 980 kN ± 100 mm stroke 1960 kN ± 100 mm stroke	2006	Seismic	New 15-story steel mixed-use office/retail/ science museum building uses a combination of unbonded braces and dampers to dissipate seismic energy.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Shibuya Park Road Building	Japan/Tokyo	Taylor Fluid Dampers Total: 10 2452 kN ± 125 mm stroke 3149 kN ± 100 mm stroke 5885 kN ± 100 mm stroke	2006	Seismic	New 7-story, 2,200 square meter reinforced concrete office building uses dampers to dissipate seismic energy.
Tainan Science Park Junction Bridge	Taiwan/Tainan	Taylor Fluid Dampers Total: 48 785 kN ± 100 mm stroke	2006	Seismic	Dampers installed on top of the bridge piers, connecting the bottom of the post-stressing reinforced concrete I-beam for earthquake energy dissipation.
Jan-Ron Ritz Building	Taiwan/Taipei	Taylor Fluid Dampers Total: 64 980 kN ± 100 mm stroke	2006	Seismic	New 24-story reinforced concrete residential building uses dampers in A-shape supporting frame for earthquake energy dissipation.
Ruentex Tun-Jen Building	Taiwan/Taipei	Taylor Fluid Dampers Total: 88 858 kN ± 100 mm stroke 1147 kN ± 100 mm stroke	2006	Seismic	New 21-story steel-framed residential building uses dampers in A-shape supporting frame for earthquake energy dissipation.
Beijing Silvertie Center	China/Beijing	Taylor Fluid Dampers Total: 73 1200 kN ± 100 mm stroke	2006	Seismic	New 63-story building uses dampers in diagonal braces to reduce seismic and wind motion.
Bayer CMF Building #66	USA/Berkeley, CA	Taylor Fluid Dampers Total: 88 858 kN ± 100 mm stroke 1147 kN ± 100 mm stroke 1325 kN ± 100 mm stroke	2005	Seismic	New 2-story, 3,500 square meter clinical manufacturing facility utilizes dampers to reduce drift and dissipate seismic energy.
Sinclear Elementary School	USA/Ceres, CA	Taylor Fluid Dampers Total: 8 107 kN, ± 75 mm stroke	2005	Seismic	New school athletic complex uses dampers in chevron braces to dissipate seismic energy.
Semiconductor Building	USA/Silicon Valley, CA	Taylor Fluid Dampers Total: 26 890 kN, ± 76 mm stroke 2935 kN, ± 76 mm stroke 4380 kN, ± 76 mm stroke	2005	Seismic	Seismic upgrade of a 2-story steel frame semiconductor manufacturing building uses dampers in diagonal braces.
Logan Airport Central Parking Garage	USA/Boston, MA	Taylor Fluid Dampers Total: 96 133 kN, ± 25 mm stroke	2005	Seismic	Lock-up devices used as part of a seismic upgrade and expansion. Devices used between existing structure and new parking structure around original structure at the first and second floors.

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NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Mississippi River Bridge	USA/Greenville, MS	Taylor Fluid Dampers Total: 8 4600 kN, \pm 152 mm stroke	2005	Seismic	New cable-stayed bridge carries U.S. Hwy 82 over Mississippi River. 420 m main span is longest in the continental U.S. Dampers control seismic movement while allowing for thermal movement.
Spring Mountain Road Pedestrian Bridges	USA/Las Vegas, NV	Taylor Fluid Dampers Total: 18 TMD Systems	2005	Pedestrian Traffic	Group of three new pedestrian bridges utilize Taylor tuned mass dampers to reduce pedestrian-induced vibrations.
Hammersly Wharf	Australia	Taylor Fluid Dampers Total: 1 1890 kN, \pm 75 mm stroke	2005	Seismic	East Intercourse Island Wharf Strengthening Project-Damper used to control seismic movement while allowing free thermal movement.
Jackson Street Bridge	Australia/Fyshwick	Taylor Fluid Dampers Total: 2 400 kN, \pm 100 mm stroke	2005	Seismic	Shock Transmission Units used to control seismic movement while allowing free thermal movement.
GerFu Business Center	Taiwan/Taipei	Taylor Fluid Dampers Total: 25 490 kN, \pm 100 mm stroke 980 kN, \pm 100 mm stroke	2005	Seismic	Structural retrofit of an office building. Dampers used in chevron braces to dissipate seismic energy.
Nanjing 3 rd Crossing Bridge	China/Nanjing	Taylor Fluid Dampers Total: 54 1471 kN, \pm 120 mm stroke	2005	Seismic	Dampers installed on the approaches of a new cable stayed bridge to control longitudinal earthquake movement while allowing free thermal movement.
Huabei Power Plant	China/Shandong	Taylor Fluid Dampers Total: 96 8.9 kN, \pm 25.4 mm stroke	2005	Equipment Vibration	Dampers used to reduce equipment vibration.
Zhengzhou Convention Center	China/Zhengzhou	Taylor Fluid Dampers Total: 144 2 kN, \pm 25 mm stroke	2005	Pedestrian Traffic & Dancing	New convention center floor utilizes tuned mass dampers to reduce perceptible vibrations caused by walking and dancing inputs.
Cyprus Olympic Building	Cyprus/Nicosia	Taylor Fluid Dampers Total: 52 150 kN \pm 50 mm stroke	2005	Seismic	New 3-story reinforced concrete building uses dampers in scissor-type toggle braces to dissipate seismic energy.
Pont de Vatine Bridge	France/Le Havre	Taylor Fluid Dampers Total: 6 67 kN \pm 102 mm stroke 67 kN \pm 152 mm stroke 50 kN \pm 152 mm stroke	2005	Kinetic Energy	New movable pedestrian bridge uses a combination of lift, oscillation and rotational energy absorbers.
Shinjuku 3-Chome East Building	Japan/Tokyo-Shinjyuku	Taylor Fluid Dampers Total: 2 2452 kN \pm 150 mm stroke	2005	Seismic	New 14-story 26,400 square meter entertainment complex uses dampers to dissipate seismic energy.

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NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Daebuk Gyo Bridge	South Korea/Wulsan City	Taylor Fluid Dampers Total: 4 868 kN ± 100 mm stroke	2005	Seismic	Seismic retrofit of a three span steel girder highway bridge.
Alameda	Mexico/Mexico City	Taylor Fluid Dampers Total: 34 645 kN ± 75 mm stroke	2005	Seismic	Conversion of a 1950's vintage parking garage to small apartments. Dampers used in diagonal bracing elements to dissipate seismic energy.
Fubon/China Insurance Building	Taiwan/Taipei	Taylor Fluid Dampers Total: 124 490 kN, ± 75 mm stroke 785 kN, ± 75 mm stroke 1079 kN, ± 75 mm stroke 1275 kN, ± 75 mm stroke 1471 kN, ± 75 mm stroke	2005	Seismic	New 16-story residential building uses dampers in diagonal braces to dissipate seismic energy.
Kindom 101 Leadership	Taiwan/Taipei	Taylor Fluid Dampers Total: 23 980 kN ± 50 mm stroke	2005	Seismic	New 18-story 13,000 square meter residential building uses dampers in diagonal bracing elements.
National Palace Museum	Taiwan/Taipei	Taylor Fluid Dampers Total: 172 500 kN ± 75 mm stroke 1000 kN ± 75 mm stroke	2005	Seismic	Retrofit of a well-known museum. Dampers used to dissipate seismic energy in this seven building complex.
Shin Keio Plaza	Taiwan/Taipei	Taylor Fluid Dampers Total: 24 980 kN ± 152 mm stroke	2005	Seismic	New 22-story SRC residential building uses dampers in A-shape supporting frame for earthquake energy dissipation.
Touch the Heart of Hawaii	Taiwan/Taipei	Taylor Fluid Dampers Total: 30 980 kN ± 50 mm stroke 1225 kN ± 75 mm stroke	2005	Seismic	New 35,000 square meter 14-story reinforced concrete residential building uses a combination of dampers in diagonal and chevron braces.
Nordstrom South Coast Plaza	USA/Costa Mesa, CA	Taylor Fluid Dampers Total: 40 667 kN, ± 100 mm stroke 890 kN, ± 100 mm stroke	2004	Seismic	Retrofit of 23,000 square meter, 4-story steel moment frame retail building. Dampers used in chevron braces to dissipate seismic energy.
Monroe Middle School	USA/Campbell, CA	Taylor Fluid Dampers Total: 8 107 kN, ± 75 mm stroke	2004	Seismic	New school athletic complex uses dampers in chevron braces to dissipate seismic energy.
Rolling Hills Middle School	USA/Los Gatos, CA	Taylor Fluid Dampers Total: 8 107 kN, ± 75 mm stroke	2004	Seismic	New school athletic complex uses dampers in chevron braces to dissipate seismic energy.

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NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
East Bay Municipal Utility District-Administration Building	USA/Oakland, CA	Taylor Fluid Dampers Total: 50 1112 kN, ± 127 mm stroke 1446 kN, ± 190 mm stroke 2669 kN, ± 165 mm stroke	2004	Seismic	Retrofit of 10-story steel structure. Dampers used in diagonal and chevron braces to dissipate seismic energy.
CSUS-Academic Information Resources Center	USA/Sacramento, CA	Taylor Fluid Dampers Total: 24 230 kN, ± 50 mm stroke 260 kN, ± 50 mm stroke	2004	Seismic	New 10,000 square meter, 4-story steel frame building uses dampers in diagonal bracing elements to dissipate seismic energy.
Vacaville Police Station	USA/Vacaville, CA	Taylor Fluid Dampers Total: 20 489 kN, ± 50 mm stroke 890 kN, ± 50 mm stroke	2004	Seismic	New 2-story, 4,000 square meter police headquarters uses dampers in diagonal braces to provide a cost-effective building that will provide immediate occupancy performance for a 475 year return seismic event.
Los Angeles Regional Transportation Management Center	USA/Los Angeles, CA	Taylor Fluid Dampers Total: 25 1450 kN, ± 660 mm stroke	2004	Seismic	New construction with base isolation. These special dampers are equipped with an automatic wind-lock mechanism, while also functioning as seismic energy absorbers.
Richmond-San Rafael Bridge	USA/Richmond, CA	Taylor Fluid Dampers Total: 28 1000 kN, ± 965 mm stroke 2225 kN, ± 508 mm stroke	2004	Seismic	Retrofit of a 4.5 mile steel truss bridge designed in the 1950's. Dampers used to dissipate seismic energy and allow the bridge to withstand a maximum credible earthquake.
George Washington Bridge	USA/Seattle, WA	Taylor Fluid Dampers Total: 4 4900 kN, ± 75 mm stroke	2004	Seismic	Retrofit of a large steel truss bridge. Devices used to control seismic movement while allowing free thermal movement.
Weirton-Steubenville, Veterans Memorial Bridge	Weirton, WV	Taylor Fluid Dampers Total: 88 9 kN, ± 25 mm stroke 2.5 kN, ± 25 mm stroke	2004	Wind & Rain	Retrofit of a cable-stayed bridge. Dampers attached to cable stays to reduce cable vibration induced by a combination of wind and rain.
Veterans Memorial Bridge-Texas	USA/Groves, TX	Taylor Fluid Dampers Total: 80 25 kN, ± 150 mm stroke	2004	Wind	Retrofit of a cable-stayed bridge. Dampers attached to cable stays to reduce motion induced by a combination of wind and rain.
TSMC FAB #5	Taiwan/Hsin Chu City	Taylor Fluid Dampers Total: 44 981 ± 75 mm stroke 1471 ± 75 mm stroke	2004	Seismic	Retrofit of a semiconductor fabrication plant uses dampers to dissipate seismic energy and micro-vibrations.

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NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
TSMC FAB #8	Taiwan/Hsin Chu City	Taylor Fluid Dampers Total: 58 785 ± 38 mm stroke 1422 ± 220 mm stroke 1452 ± 50 mm stroke	2004	Seismic	Retrofit of a semiconductor processing plant uses dampers to dissipate seismic energy and micro-vibrations.
Uni-President Headquarters	Taiwan/Taipei	Taylor Fluid Dampers Total: 52 980 kN, ± 75 mm stroke 980 kN, ± 100 mm stroke 1960 kN, ± 75 mm stroke	2004	Seismic	Retrofit of residential building to reduce seismic drift and forces after adding 2 additional floors on top of the structure. Dampers used in chevron and diagonal braces to dissipate seismic energy.
Grand Master Construction Residential Building (KCEC)	Taiwan/Taipei	Taylor Fluid Dampers Total: 32 980 kN, ± 50 mm stroke 735 kN, ± 50 mm stroke	2004	Seismic	New 14-story steel reinforced concrete residential building uses dampers in chevron braces for earthquake energy dissipation.
Temple Lofts	USA/Long Beach, CA	Taylor Fluid Dampers Total: 64 667 kN, ± 75 mm stroke 890 kN, ± 75 mm	2004	Seismic	Conversion of a Masonic Temple to condominiums. Dampers used in chevron braces to dissipate seismic energy.
Coldhams Lane Bridge	UK/Cambridge	Taylor Fluid Dampers Total: 2 100 kN, ± 75 mm stroke	2004	Vehicle Collision	Lock-up devices installed on a small footbridge to prevent the bridge from falling off its piers if a vehicle collides with the bridge.
Kuo Mei Building	Taiwan/Taipei	Taylor Fluid Dampers Total: 4 981 kN, ± 75 mm stroke	2004	Seismic	New 14-story residential building uses dampers in chevron braces to dissipate seismic energy.
Hotel Stockton	USA/Stockton, CA	Taylor Fluid Dampers and Viscoelastic Dampers Total: 20 890 kN, ± 100 mm stroke 1668 kN, ± 38 mm stroke	2004	Seismic	Seismic retrofit of a 6-story historic concrete structure with a combination of fluid viscous and fluid viscoelastic dampers in diagonal braces.
Taishin Bank Headquarters	Taiwan/Taipei	Taylor Fluid Dampers Total: 72 980 kN, ± 75 mm stroke 1470 kN, ± 75 mm stroke 1962 kN, ± 75 mm stroke	2003-2004	Seismic	New 28-story steel framed office building uses dampers in chevron braces for earthquake energy dissipation.
Cross Keys Bridge	UK/South Lincolnshire	Taylor Fluid Dampers Total: 1 330 kN, ± 92 mm stroke	2003	Braking/Traction	Retrofit/upgrade of an old swing bridge. Device used to control braking/traction forces while allowing free thermal movement.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Guitai Construction Residential Building (KCEC)	Taiwan/Taipei	Taylor Fluid Dampers Total: 28 735 kN, ± 50 mm stroke	2003	Seismic	New 9-story steel reinforced concrete residential building uses dampers in chevron braces for earthquake energy dissipation.
Hilmar Gymnasium	USA/Hilmar, CA	Taylor Fluid Dampers Total: 8 107 kN, ± 75 mm stroke	2003	Seismic	New school athletic complex uses dampers in chevron braces to dissipate seismic energy.
New de Young Fine Arts Museum	USA/San Francisco, CA	Taylor Fluid Dampers Total: 26 1112 kN, ± 762 mm stroke	2003	Seismic	New base isolated building uses fluid viscous dampers to add energy dissipation to isolation system for premium seismic performance.
PSU-Smith Memorial Center Building	USA/Portland, OR	Taylor Fluid Dampers Total: 118 400 kN, ± 75 mm stroke 845 kN, ± 75 mm stroke	2003	Seismic	Seismic upgrade to Portland State University Building. Dampers are used in chevron braces throughout this 4-story structure.
Renton Transfer Station	USA/Renton, WA	Taylor Fluid Dampers Total: 3 290 kN, ± 75 mm stroke	2003	Seismic	New King County recycling center roof structure uses dampers in diagonal knee-brace for seismic energy dissipation.
Parklane Apartments	New Zealand/Wellington	Taylor Fluid Dampers Total: 8 10 kN, ± 89 mm stroke	2003	Wind	Retrofit of residential apartment building with dampers in two tuned mass dampers to reduce motion caused by wind.
Pearson Airport Control Tower	Canada/Toronto, ON	Taylor Fluid Dampers Total: 8 31 kN, ± 89 mm stroke	2003	Wind	New air traffic control tower uses dampers as part of a tuned mass damper to reduce motion caused by wind.
Peace & Friendship Stadium	Greece/Athens	Taylor Fluid Dampers Total: 128 1000 kN, ± 85 mm stroke 1200 kN, ± 60 mm stroke	2003	Seismic	Seismic upgrade and renovation to the roof of an isolated saddle-shaped stadium used for the 2004 Olympics in Athens.
Pietrasanta Residences	Venezuela/Barquisimeto	Taylor Fluid Dampers Total: 24 245 kN, ± 75 mm stroke	2003	Seismic	New 11-story residential building uses dampers to absorb seismic energy to provide unparalleled performance in this premium caliber structure.
Solano County Government Building	USA/Fairfield, CA	Taylor Fluid Dampers Total: 20 1560 kN, ± 75 mm stroke	2003	Seismic	New government building utilizes dampers in chevron braces to dissipate seismic energy.
Soldier Field	USA/Chicago, IL	Taylor Fluid Dampers Total: 42 9 kN, ± 50 mm stroke	2003	Spectator Vibration	New seating bowl for football stadium uses dampers in tuned mass dampers to reduce motion caused by spectator movements.
Taiwan High Speed Rail - Section C270	Taiwan/Yun Lin	Taylor Fluid Dampers Total: 34 3900 kN, ± 125 mm stroke	2003	Seismic	New high speed railway bridge sections use dampers to control movement at expansion joints during earthquake and train braking events.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Holland Hills Mori Tower RoP	Japan, Tokyo	Taylor Fluid Dampers Total: 204 650 kN, ± 100 mm stroke 1300 kN, ± 100 mm stroke 1800 kN, ± 100 mm stroke	2003	Seismic	New construction, 24-story building uses dampers to dissipate earthquake energy to reduce demands on the structure.
Cochrane Bridge	USA/Mobile, AL	Taylor Fluid Dampers Total: 68 40 kN, ± 150 mm stroke 22 kN, ± 150 mm stroke	2003	Wind	Retrofit of a cable-stayed bridge. Dampers attached to cable stays to reduce motion induced by a combination of wind and rain.
Chung Hwa Telecommunications Building	Taiwan/San Hwa	Taylor Fluid Dampers Total: 12 1570 kN, ± 100 mm stroke	2003	Seismic	Retrofit of Taiwan Government-owned 3-story office and equipment telecommunications building. Uses dampers in chevron braces for earthquake energy dissipation.
San Francisco-Oakland Bay Bridge, West Span- Suspension Bridge	USA/San Francisco, CA	Taylor Fluid Dampers Total: 100 2000 kN, ± 483 mm stroke 2450 kN, ± 584 mm stroke 3115 kN, ± 178 mm stroke	2003	Seismic	Retrofit of suspension span between San Francisco and Yerba Buena island. Dampers used to dissipate seismic energy.
Abernethy Bridge	USA/Oregon City, OR	Taylor Fluid Dampers Total: 32 1000 kN, ± 55 mm stroke 1500 kN, ± 75 mm stroke 750 kN, ± 155 mm stroke	2002-2003	Seismic	Retrofit of an existing bridge. Dampers used to control earthquake movement and distribute forces while allowing free thermal movement.
Route 364 Page Avenue Extension Bridge	USA/St. Louis, MO	Taylor Fluid Dampers Total: 178 1050 kN, ± 50 mm stroke 756 kN, ± 70 mm stroke 1824 kN, ± 50 mm stroke 2225 kN, ± 92 mm stroke 556 kN, ± 127 mm stroke 867 kN, ± 127 mm stroke	2002-2003	Seismic	New tied arch/plate girder bridge uses dampers to control longitudinal earthquake movement while allowing free thermal movement.
Atatürk Airport Expansion	Turkey/Istanbul	Taylor Fluid Dampers Total: 68 45 kN, ± 25 mm stroke	2002	Seismic	Extension of International Terminal required additional damping devices to control deflection and minimize thermal restrictions of roof structure supported on FPS isolators.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
BCBC Pandora Wing	Canada/Victoria, BC	Taylor Fluid Dampers Total: 76 220 kN, \pm 57 mm stroke 130 kN, \pm 57 mm stroke	2002	Seismic	Retrofit of a 7-story concrete frame/shear wall building built in 1974. Dampers used in chevron braces.
Boise Airport	USA/Boise, ID	Taylor Fluid Dampers Total: 8 445 kN, \pm 57 mm stroke 756 kN, \pm 84 mm stroke 979 kN, \pm 127 mm stroke	2002	Seismic & Wind	New construction, airport terminal building uses dampers to dissipate earthquake energy to reduce demands on the structure.
Buddhist Headquarters	Taiwan/Taipei	Taylor Fluid Dampers Total: 60 981 kN, \pm 75 mm stroke	2002	Seismic	New construction, 17-story building uses dampers to dissipate earthquake energy.
Gillette (Foxboro) Stadium	USA/Foxboro, MA	Taylor Fluid Dampers Total: 18 222 kN, \pm 178 mm stroke	2002	Seismic	Dampers installed across expansion joints of a new open-air football stadium to control motion caused by seismic events.
Bill Emerson Memorial Bridge (Cape Girardeau)	USA/Cape Girardeau, MO	Taylor Fluid Dampers Total: 16 6700 kN, \pm 180 mm stroke	2002	Seismic	New construction of a cable-stayed bridge. Dampers used to control longitudinal earthquake movement while allowing free thermal movement.
Torre Mayor (Chapultepec Tower)	Mexico/Mexico City	Taylor Fluid Dampers Total: 98 5600 kN, \pm 52 mm stroke 2770 kN, \pm 52 mm stroke	2002	Seismic	New 55-story high-rise office/hotel tower uses dampers in mega-braces to dissipate earthquake energy.
Discovery Bay Gymnasium	USA/Discovery Bay, CA	Taylor Fluid Dampers Total: 8 107 kN, \pm 75 mm stroke	2002	Seismic	New school athletic complex uses dampers in chevron braces to dissipate seismic energy.
Genentech FRC II	USA/San Francisco, CA	Taylor Fluid Dampers Total: 192 667 kN, \pm 102 mm stroke 890 kN, \pm 102 mm stroke 1334 kN, \pm 102 mm stroke	2002	Seismic	New construction, 3-story multi-building complex uses dampers to dissipate earthquake energy.
HP Invent Building 5	USA/Corvallis, OR	Taylor Fluid Dampers Total: 18 400 kN, \pm 100 mm stroke 135 kN, \pm 100 mm stroke	2002	Seismic	Voluntary seismic upgrade of a critical manufacturing facility. Dampers are used in diagonal bracing to dissipate seismic energy.
Hollister Gymnasiums	USA/Hollister, CA	Taylor Fluid Dampers Total: 40 106 kN, \pm 76 mm stroke	2002	Seismic	New construction, 4 gymnasiums located in the Rancho San Justo School District. Dampers used in chevron braces to dissipate earthquake energy.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Hsien Dien/Tzu Chi Hospital	Taiwan/Taipei	Taylor Fluid Dampers Total: 48 890 kN, ± 810 mm stroke	2002	Seismic	New construction, dampers used to add energy dissipation to a base isolation system.
Immunex Corporation Helix Project – Central Utility Plant	USA/Seattle, WA	Taylor Fluid Dampers Total: 16 1670 kN, ± 75 mm stroke	2002	Seismic	New construction, 3-story steel frame building uses dampers to dissipate earthquake energy to reduce demands on the structure and switchgear equipment.
INTERCENTRO	Dominican Republic/Santo Domingo	Taylor Fluid Dampers Total: 48 950 kN, ± 50 mm stroke 1565 kN, ± 50 mm stroke 2240 kN, ± 50 mm stroke	2002	Seismic	New construction, 18-story steel frame building uses dampers to dissipate earthquake energy to reduce demands on the structure.
Poplar Street Bridge	USA/St. Louis, MO	Taylor Fluid Dampers Total: 64 1334 kN, ± 183 mm stroke 2224 kN, ± 229 mm stroke	2002	Seismic	Large highway bridge over the Mississippi River uses dampers to control longitudinal earthquake movement while allowing free thermal movement.
South Bay Office Tower	USA/San Jose, CA	Taylor Fluid Dampers Total: 88 490 kN, ± 125 mm stroke	2002	Seismic	Retrofit of a 10-story office building to upgrade seismic performance of flexible floor to column systems.
Stacy Park Reservoir	USA/St. Louis, MO	Taylor Fluid Dampers Total: 193 222 kN, ± 63 mm stroke 445 kN, ± 63 mm stroke	2002	Seismic	Seismic retrofit of an 8-section cover for a water reservoir. Dampers used to control motion caused by seismic events.
UC Irvine Hall Building	USA/Irvine, CA	Taylor Fluid Dampers Total: 14 267 kN, ± 75 mm stroke	2002	Seismic	Retrofit/seismic improvements to Graduate School of Management Building. Dampers are used in diagonal braces to provide energy dissipation for seismic events.
10 th & K Street	USA/Sacramento, CA	Taylor Fluid Dampers Total: 4 823 kN, ± 76 mm stroke	2001	Seismic	Seismic retrofit of an office building. Dampers used in diagonal braces for seismic energy dissipation.
999 Sepulveda	USA/Los Angeles, CA	Taylor Fluid Dampers Total: 60 2670 kN, ± 75 mm stroke	2001	Seismic	Retrofit of an 8-story steel frame building built in 1962. Dampers used in diagonal braces to dissipate seismic energy.
Dexter Horton Building	USA/Seattle, WA	Taylor Fluid Dampers Total: 18 1112 kN, ± 63 mm stroke	2001	Seismic	Seismic retrofit of a 15-story concrete frame/shear wall building. Dampers used in diagonal braces to dissipate seismic energy.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
First International Computer Company Building	Taiwan/Taipei	Taylor Fluid Dampers Total: 144 266 kN, ± 50 mm stroke 434 kN, ± 50 mm stroke 583 kN, ± 50 mm stroke 989 kN, ± 63 mm stroke 1349 kN, ± 63 mm stroke	2001	Seismic	New construction, 14-story building uses dampers to dissipate earthquake energy. Cousin building to Taishin Bank.
Hearst Memorial Mining Building	USA/Berkeley, CA	Taylor Fluid Dampers Total: 26 890 kN, ± 813 mm stroke	2001	Seismic	Seismic retrofit of a 4-story brick laboratory building on the U.C. Berkeley campus. Dampers provide energy dissipation for a seismic isolation system.
J-city TOKYO Office Tower	Japan/Tokyo	Taylor Fluid Dampers Total: 241 785 kN, ± 50 mm stroke 1275 kN, ± 75 mm stroke	2001	Seismic	New construction, 23-story building uses dampers to dissipate earthquake energy to reduce demands on the structure.
Millennium Bridge	UK/London	Taylor Fluid Dampers Total: 37 50 kN, ± 25 mm stroke 50 kN, + 153/- 377 mm stroke 50 kN, + 40/- 80 mm stroke	2001	Pedestrian Traffic	Retrofit of pedestrian bridge to reduce lateral and vertical movements caused by large groups of people walking on the bridge. Special metal bellows dampers used for maintenance-free operation over the life of the bridge under continuous cycling.
New Westminster, BC Police Building	Canada/New Westminster, BC	Taylor Fluid Dampers Total: 12 890 kN, ± 70 mm stroke	2001	Seismic	Retrofit of a 4-story concrete frame/shear wall building built in 1939. Dampers used in chevron braces inside new steel moment frames to balance irregularities in the building's stiffness.
Palo Alto Office Building	USA/Palo Alto, CA	Taylor Fluid Dampers Total: 22 1670 kN, ± 152 mm stroke	2001	Seismic	Seismic retrofit of an office building. Dampers used in chevron braces to dissipate seismic energy.
Sacramento River Bridge at Rio Vista	USA/Rio Vista, CA	Taylor Fluid Dampers Total: 10 825 kN, ± 133 mm stroke	2001	Seismic	Seismic retrofit of lift bridge towers to dampen the rocking effect during an earthquake.
Taishin Bank	Taiwan/Taipei	Taylor Fluid Dampers Total: 144 266 kN, ± 50 mm stroke 434 kN, ± 50 mm stroke 583 kN, ± 50 mm stroke 989 kN, ± 63 mm stroke 1349 kN, ± 63 mm stroke	2001	Seismic	New construction, 14-story building uses dampers to dissipate earthquake energy. Cousin building to First International Computer Company Building.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Tokyo Rinkai Hospital	Japan/Tokyo	Taylor Fluid Dampers Total: 45 890 kN, ± 813 mm stroke	2001	Seismic	New construction, dampers used to add energy dissipation to a base isolation system.
WorldCom – Local Switch	USA/Oakland, CA	Taylor Fluid Dampers Total: 20 2225 kN, ± 75 mm stroke 2225 kN, ± 150 mm stroke	2001	Seismic	Seismic retrofit of a 17-story building. Dampers used in diagonal braces.
111 Huntington Avenue	USA/Boston, MA	Taylor Fluid Dampers Total: 60 1300 kN, ± 101 mm stroke	2000	Wind	New construction, 38-story building uses a combination of direct acting dampers and toggle brace dampers to reduce motion caused by wind storms.
Amolanas Bridge	Chile/Santiago	Taylor Fluid Dampers Total: 4 3000 kN, ± 200 mm stroke	2000	Seismic	New bridge utilizes dampers to absorb earthquake energy, reduce movement and distribute forces while allowing free thermal movement.
Atatürk Airport	Turkey/Istanbul	Taylor Fluid Dampers Total: 120 45 kN, ± 25 mm stroke	2000	Seismic	New international terminal with FPS isolators uses dampers to control deflection and minimize thermal restrictions.
East Huntington Bridge	USA/Huntington, WV	Taylor Fluid Dampers Total: 54 5 kN, ± 25 mm stroke 3 kN, ± 25 mm stroke	2000	Wind	Retrofit of a cable-stayed bridge. Dampers attached to cables to reduce vibrations caused by a combination of wind and rain.
Ingram Micro Office Building	USA/Santa Ana, CA	Taylor Fluid Dampers Total: 7 490 kN, ± 127 mm stroke	2000	Seismic	Voluntary seismic upgrade to this 3-story office building. Utilizes dampers in chevron braces for seismic energy dissipation.
William H. Harsha (Maysville Bridge)	USA/Maysville, KY	Taylor Fluid Dampers Total: 8 1300 kN, ± 305 mm stroke	2000	Seismic	New bridge utilizes dampers to control earthquake movement and distribute forces while allowing free thermal movement.
Millennium Place	USA/Boston, MA	Taylor Fluid Dampers Total: 40 445 kN, ± 125 mm stroke	2000	Wind	New construction, 37-story building uses dampers with toggle braces to reduce motion caused by wind storms.
Novelty Bridge #404B	USA/Seattle, WA	Taylor Fluid Dampers Total: 8 1450 kN, ± 100 mm stroke	2000	Seismic	Replacement bridge project in King County uses dampers to allow thermal movement and restrict seismic movements.
Qinshan III Nuclear Powerplant	China/Shanghai	Taylor Fluid Dampers Total: 16 445 kN, ± 127 mm stroke	2000	Seismic	New powerplant uses dampers in heat exchanger for seismic strengthening.
Romanian Oil Refinery	Romania/Bucharest	Taylor Fluid Dampers Total: 8 33.3 kN, ± 250 mm stroke	2000	Seismic	Seismic retrofit of a 36-meter tower with a 600 tonnes mass on top. Dampers used as part of a tuned mass damping system to dissipate energy.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Triborough Bridge Approaches	USA/New York, NY	Taylor Fluid Dampers Total: 80 445 kN, \pm 152 mm stroke	2000	Seismic	Retrofit of the approaches to a suspension bridge. Dampers used to control earthquake movement and distribute forces while allowing free thermal movement.
Web-hosting Data Center	USA/Pleasanton, CA	Taylor Fluid Dampers Total: 32 310 kN, \pm 64 mm stroke	2000	Seismic	Voluntary seismic upgrade of a computer facility. Dampers used in chevron braces to dissipate seismic energy.
Yerba Buena Tower	USA/San Francisco, CA	Taylor Fluid Dampers Total: 20 445 kN, \pm 125 mm stroke	2000	Wind	New construction, 37-story hotel/condominiums with dampers used in displacement multiplying toggle braces to improve occupant comfort during wind storms.
1414 K Street	USA/Sacramento, CA	Taylor Fluid Dampers Total: 8 1125 kN, \pm 63 mm stroke	1999	Seismic	Retrofit of an existing office building. Dampers used in diagonal braces to dissipate earthquake energy.
Minute Maid Park (Ballpark at Union Station)	USA/Houston, TX	Taylor Fluid Dampers Total: 16 300 kN, \pm 153 mm stroke	1999	Wind	New baseball stadium utilizes dampers to mitigate the effects of hurricane force winds on the roof structure.
Beijing Railway Station	China/Beijing	Taylor Fluid Dampers Total: 32 1300 kN, \pm 44 mm stroke	1999	Seismic	Retrofit of a railway station. Dampers used in chevron bracing elements to dissipate earthquake energy.
Hyatt Park Tower	USA/Chicago, IL	Taylor Fluid Dampers Total: 10 45 kN, \pm 500 mm stroke 22 kN, \pm 265 mm stroke 45 kN, \pm 300 mm stroke 175 kN, \pm 100 mm stroke	1999	Wind	New 67-story reinforced concrete structure uses dampers as part of a Tuned Mass Damper to improve occupant comfort during wind storms.
I-5/91 HOV Bridge	USA/Anaheim, CA	Taylor Fluid Dampers Total: 8 1110 kN, \pm 200 mm stroke	1999	Seismic	New bridge uses dampers to dissipate earthquake energy for reduced demands on the structure.
Los Angeles City Hall	USA/Los Angeles, CA	Taylor Fluid Dampers Total: 68 1400 kN, \pm 600 mm stroke 1000 kN, \pm 115 mm stroke	1999	Seismic	Retrofit of City Hall building with dampers used to add energy dissipation to base isolation system. Also uses dampers at 27 th floor to protect tower from earthquakes.
Microsoft Silicon Valley Campus – Building 1	USA/Mountain View, CA	Taylor Fluid Dampers Total: 15 1000 kN, \pm 75 mm stroke	1999	Seismic	New construction, 10,000 square meter computer data center with dampers used in chevron bracing elements to dissipate seismic energy.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
San Francisco International Airport - Rail Transit System Westside Guideway	USA/San Francisco, CA	Taylor Fluid Dampers Total: 10 4225 kN, ± 508 mm stroke 3115 kN, ± 508 mm stroke	1999	Seismic	New Airport Rail Transit (ART) and Bay Area Rapid Transit (BART) structure implement dampers for earthquake energy dissipation.
San Francisco International Airport - South International Parking Garage Pedestrian Bridge	USA/San Francisco, CA	Taylor Fluid Dampers Total: 20 445 kN, ± 254 mm stroke	1999	Seismic	New pedestrian bridge utilizes dampers to dissipate earthquake energy and reduce movement.
San Francisco-Oakland Bay Bridge, East Span-Truss Bridge	USA/San Francisco, CA	Taylor Fluid Dampers Total: 6 890 kN, ± 406 mm stroke	1999	Seismic	Interim retrofit of East Bay 504 truss sections. Dampers used to dissipate seismic energy.
Santa Clara Police Facility	USA/Santa Clara, CA	Taylor Fluid Dampers Total: 40 575 kN, ± 25 mm stroke 800 kN, ± 25 mm stroke	1999	Seismic	New police facility utilizes dampers in chevron bracing elements to dissipate earthquake energy.
Sidney Lanier Bridge	USA/Glynn County, GA	Taylor Fluid Dampers Total: 4 2200 kN, ± 203 mm stroke	1999	Seismic	New bridge utilizes dampers to control earthquake movement and distribute forces while allowing free thermal movement.
The Nethercutt Collection	USA/Sylmar, CA	Taylor Fluid Dampers Total: 32 1500 kN, ± 75 mm stroke 1065 kN, ± 75 mm stroke 665 kN, ± 75 mm stroke	1999	Seismic	New construction, automotive museum with dampers used in diagonal braces to dissipate seismic energy.
Transbay Transit Terminal	USA/San Francisco, CA	Taylor Fluid Dampers Total: 36 1300 kN, ± 44 mm stroke 1300 kN, ± 76 mm stroke	1999	Seismic	Retrofit of a bus terminal. Dampers used in chevron bracing elements to dissipate earthquake energy.
Willamette River Pedestrian Bridge	USA/Eugene, OR	Taylor Fluid Dampers Total: 4 500 kN, ± 40 mm stroke	1999	Seismic & Wind	Retrofit of a bridge over the Willamette River. Dampers used to control wind and earthquake movement while allowing free thermal movement.
SAFECO Field (New Pacific Northwest Baseball Park)	USA/Seattle, WA	Taylor Fluid Dampers Total: 36 1780 kN, + 100 mm stroke 890 kN, + 400 mm stroke	1998-1999	Wind & Kinetic Energy	Dampers installed between three roof sections and at end stops to absorb energy from impact due to wind, kinetic energy and motor drive.
First Avenue South Bridge	USA/Seattle, WA	Taylor Fluid Dampers Total: 4 600 kN, + 635 mm stroke	1998	Kinetic Energy of Moving Bridge	Retrofit of a bascule bridge to protect the bascule leafs from runaway motors and brake failures.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
SAFECO Field (New Pacific Northwest Baseball Park)	USA/Seattle, WA	Taylor Fluid Dampers Total: 8 3600 kN, ± 381 mm stroke	1998	Seismic & Wind	New baseball stadium utilizes dampers to dissipate earthquake energy in each of three movable roof sections.
Tillamook Hospital	USA/Tillamook, OR	Taylor Fluid Dampers Total: 30 135 kN, ± 50 mm stroke	1998	Seismic	Retrofit of an existing hospital to meet current seismic protection code levels. Dampers used in chevron braces to dissipate earthquake energy.
UCLA-Knudsen Hall	USA/Los Angeles, CA	Taylor Fluid Dampers Total: 84 355 kN, ± 100 mm stroke 245 kN, ± 100 mm stroke	1998	Seismic	Seismic upgrade of a University building. Dampers used in chevron bracing elements to dissipate earthquake energy.
Alaska Commercial Building	USA/Alaska	Taylor Fluid Dampers Total: 2 445 kN, ± 64 mm stroke	1997	Seismic	Retrofit of a timber frame structure. Dampers used in diagonal bracing to dissipate earthquake energy.
CSULA Administration Building	USA/Los Angeles, CA	Taylor Fluid Dampers Total: 14 1100 kN, ± 75 mm stroke	1997	Seismic	Seismic upgrade to office building. Dampers used in chevron bracing elements to dissipate seismic energy.
Hayward City Hall	USA/Hayward, CA	Taylor Fluid Dampers Total: 15 1400 kN, ± 600 mm stroke	1997	Seismic	New construction, dampers used to add energy dissipation to friction pendulum bearing isolation system.
Quebec Iron and Titanium Smelter	Canada/Tracy	Taylor Spring Dampers and Taylor Dampers Total: 22 450 kN, ± 64 mm stroke 225 kN, ± 100 mm stroke 130 kN, ± 100 mm stroke	1997	Seismic & Wind	Dual purpose spring dampers used for seismic and wind protection of two smelter buildings. Dampers used to prevent buildings from impacting during a seismic event.
Rockwell Building 505	USA/Newport Beach, CA	Taylor Fluid Dampers Total: 6 320 kN, ± 64 mm stroke	1997	Seismic	Retrofit of a long building with multiple expansion gaps. Dampers restrict relative movement between building sections.
San Francisco Civic Center	USA/San Francisco, CA	Taylor Fluid Dampers Total: 292 1000 kN, ± 100 mm stroke 550 kN, ± 100 mm stroke	1997	Seismic	New construction, 14-story, 80,000 square meter Government office building with dampers in diagonal bracing elements to dissipate seismic energy.
Studio Parking Garage	USA/Los Angeles, CA	Taylor Fluid Dampers Total: 2 150 kN, ± 50 mm stroke	1997	Seismic	Dampers used to allow thermal motion, concrete expansion/contraction and creep, while controlling earthquake movement.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Worcester's Centrum Centre/Arena and Convention Complex	USA/Worcester, MA	Taylor Fluid Dampers Total: 32 10 kN, \pm 75 mm stroke	1997	Pedestrian Traffic and Dancing	Ballroom floor tuned mass damping system to eliminate perceptible vibrations due to dancing input and other potential input motions.
28 State Street	USA/Boston, MA	Taylor Fluid Dampers Total: 40 670 kN, \pm 25 mm stroke	1996	Wind	Wind dampers used in diagonal bracing for comfort level improvements to a completely renovated high-rise office building.
Arrowhead Regional Medical Center (5 buildings)	USA/San Bernardino, CA	Nonlinear Taylor Fluid Dampers Total: 186 1400 kN, \pm 600 mm stroke	1996	Seismic	New construction, dampers used to add energy dissipation to rubber bearing isolation system in five independently isolated buildings.
CSUS Science II Building	USA/Sacramento, CA	Taylor Fluid Dampers Total: 40 220 kN, \pm 50 mm stroke	1996	Seismic	Seismic dampers used in chevron bracing of this new structure to dissipate seismic energy.
First Avenue Bridge	USA/Seattle, WA	Taylor Fluid Dampers Total: 4 400 kN, + 685 mm stroke	1996	Kinetic Energy of Moving Bridge	Protection of new bascule leafs from runaway motors and brake failures.
Hotel Woodland	USA/Woodland, CA	Taylor Fluid Dampers Total: 16 450 kN, \pm 50 mm stroke	1996	Seismic	Seismic retrofit of 4-story historic concrete structure with fluid dampers in chevron bracing.
Kaiser Data Center	USA/Corona, CA	Taylor Fluid Dampers Total: 16 425 kN, \pm 560 mm stroke	1996	Seismic	Seismic retrofit with dampers used to add energy dissipation to rubber bearing isolation system.
Langenbach House	USA/Oakland, CA	Taylor Fluid Dampers Total: 4 130 kN, \pm 150 mm stroke	1996	Seismic	Seismic dampers used to provide energy dissipation in base isolation system.
Montlake Bridge	USA/Seattle, WA	Taylor Fluid Dampers Total: 4 240 kN, + 483 mm stroke	1996	Kinetic Energy of Moving Bridge	Retrofit of a bascule bridge to protect the bascule leafs from runaway motors and brake failures.
The Money Store National Headquarters	USA/Sacramento, CA	Taylor Fluid Dampers Total: 120 1290 kN, \pm 64 mm stroke 710 kN, \pm 64 mm stroke	1996	Seismic	New construction, pyramid shaped 11-story office building, moment frame structure with dampers in diagonal braces.
Pacific Bell North Area Operation Center	USA/Sacramento, CA	Taylor Fluid Dampers Total: 62 130 kN, \pm 50 mm stroke	1995	Seismic	New construction, 3-story steel braced frame, dampers in chevron braces used to dissipate seismic energy.

Structural Applications of Fluid Viscous Dampers

NAME AND TYPE OF STRUCTURE	COUNTRY/CITY	TYPE AND NUMBER OF DAMPERS	DATE	LOAD	ADDITIONAL INFORMATION
Petronas Twin Towers	Malaysia/KLCC	Taylor Fluid Dampers Total: 12 10 kN, \pm 50 mm stroke	1995	Wind	Kuala Lumpur City Centre high-rise towers, part of mass damping system in skybridge legs.
Ralph Wilson Stadium	USA/Buffalo, NY	Taylor Fluid Dampers Total: 12 50 kN, \pm 460 mm stroke	1993	Wind	Wind dampers connect light poles to the stadium parapet wall to eliminate base plate anchor bolt fatigue.
West Seattle Bridge	USA/Seattle, WA	Taylor Fluid Dampers Total: 6 1000 kN, + 406 mm stroke 2515 kN, + 254 mm stroke	1990	Kinetic Energy of Moving Bridge	Deck isolation for swing bridge.
North American Air Defense Command	USA/Cheyenne Mountain, CO	Taylor Dampers Quantity, type and size classified	1984	Nuclear Attack	Classified