## For vibration:

#### **Essential introduction**

Marcon Paul. *Agent of Deterioration: Physical Force*. Canadian Conservation Institute <u>https://www.cci-icc.gc.ca/resources-ressources/agentsofdeterioration-agentsdedeterioration/chap01-eng.aspx</u>

### **Further readings**

Brandenburg, Richard K, and Lee, Julian. *Fundamentals of Packaging Technology*. Illinois: L.A.B. Equipment Co, 2001..

Bratasz, Lukasz. "Vibration as a Hazard During the Transportation of Canvas Paintings" in Conservation and Access: Contributions to the 2008 IIC Congress, London. 64-68

Chonhenchob, V. Sittipod, S. Swasdee D, Rachtanapun, P. Singh S.P. and Singh J. "Effect of Truck Vibration During the Transport on Damage to Fresh produce Shipments in Thailand" in *Journal of Applied Packaging Research* Col 3, No 1 Jan 2009 27-38

Kamba, N., H. Wada, M. Tsukada, Y. Takagi, and K. Imakita, "Measurement and analysis of the global transport environment for packing cases for artifacts", *Conservation and Access*: Contributions to the 2008 IIC Congress, London.

### Fundamentals of Vibration Isolation www.cvimellesgriot.com

Macinante J. Seismic Mountings for Vibration Isolation, New York: John Wiley and Sons, 1984.

Mecklenburg, M. F. and Tumosa C. S., "An Introduction into the Mechanical Behavior of Paintings Under Rapid Loading Conditions" in *Art In Transit: Handbook for Packing and Transporting Paintings* National Gallery of Art, 1991Washington DC USA . 137-172

Newmark M. "Monitoring Construction Vibrations at Sensitive Facilities" http://www.acentech.com/images/company/acentech-monitoring-construction-vibration.pdf

Saunders D., Salttery M., and Mulder I., "Building Work, Vibration and the Permanent Collection", In *Conservation News* 68, 1999, 10-13

Shreve, Dennise H. *Introduction to Vibration Technology* <u>http://www.krelco.com/downloads/VT1\_2.pdf</u>

Steffens R. J. Structural Vibraitons and Damage, Building Research Establishment Report 1974

Thickett David "Vibration Damage Levels for Museum Objects". 13<sup>th</sup> Triannual Meeting ICOM Rio di Janiero (preprints Vol. 1)

Wei, W. Krumperman N, Delissen N. Design of a Vibration Damping System for Sculpture Pedestals: An Integral Object-based Approach <u>https://www.academia.edu/7977343/Design\_of\_a\_vibration\_damping\_system\_for\_sculpture\_ped</u>

estals\_an\_integral\_object\_based\_approach

# For earthquake damage mitigation: Introduction:

Agbabian MS, Ginell WS, Masri FS, Nigbor RL. Evaluation of Seismic Mitigation Measures for Art Objects. J. Paul Getty Trust, 1990, Los Angeles.

Podany, Jerry (vol ed). *Adances in the Protection of Museum Collections form Earthquake Damage*. J. Paul Getty Musuem, 2007, Los Angeles

IIC Dialogue series: before the Unthinkable happens Again. 2009 https://www.iiconservation.org/sites/default/files/dialogues/seismic-en.pdf

# **Further reading:**

Agbabian MS, Masri FS, Nigbor RL Evaluation of earthquake damage mitigation methods for museum objects. Studies in Conservation 36(2) 1991. 111–120.

Augusti, G.and Ciampoli, M. Guidelines for Seismic Protection of Museum Contents" in proceedings of 11<sup>th</sup> World Conference on Earthquake Engineering. Acapulco Mexico 1996 Paper #1668 on CD

Baker, Jack W. An Introduction to Probabilistic Seismic Hazard Analysis (PSHA) http://web.stanford.edu/~bakerjw/Publications/Baker\_(2008)\_Intro\_to\_PSHA\_v1\_3.pdf .

Bozorgnia, Y. and K.W. Campbell "Engineering characterization of ground motion", in, *Earthquake Engineering: From Engineering Seismology to Performance-Based Engineering*, Bozorgnia and Bertero (Eds.), CRC Press, June 2004 Chapter 5

Charola, Elena Wegener, Corine and Koestler Robert (eds) *Unexpected-Earthquake 2011: Lessons to be Learned.* The Smithsonian Institution Schoalry press, 2014, Washington D.C.

Feilden Sir Bernard M. 1987 Between Two Earthquakes: Cultural Property in Seismic Zones

http://www.getty.edu/publications/virtuallibrary/089236128X.html?qt=Earthquakes

Housner G. W. "The Behavior of the Inverted Pendulum Structures During Earthquakes" Bulletin of the Seismological Society of America 1963 53(2): 403-417

Ishiyama, Y Criteria for Overturning of Rigid Bodies by Sinusoidal and Earthquake excitations" proceedings of the 8<sup>th</sup> World Conference on Earthquake Engineering, San Francisco 1984, Vol 4, p 267 - 274)

Kounadis, Anthony.. On the Rocking Complex Response of Ancient Multispondyle Columns: A Genious and Challenging Structural System Requiring Reliable Solution. *Meccanica*. 2015. 50, no. 2: 261-292.

Makris, Nicos and. Black, Cameron J. Uplifting and Overturning of Equipment Anchored to a Base Foundation. *Earthquake Spectra*, Volume 18, No. 4, pages 631–661, November 2002; © 2002, Earthquake Engineering Research Institute

Makris N and Roussos Y "Response and Overturning of Electrical Equipment http://peer.berkely.edu/news/1999april/response.html

McGuire RK, Probabilsitic Seismic Hazard Analysis and Design Earthquakes: Closing the Loop" Bulletin of the Seismological Society of America 1995. 85(5) 1275-1284.

McGavin Gary Earthquake Protection of Essential Building Equipment Wiley and Sons 1982.

Monaco, Michelina Guadagnuolo, Mariateresa and Gesualdo, Antonio. The role of friction in the seismic risk mitigation of freestanding art objects. Nat Hazards (2014) 73:389–402

Neurohr, Theresa, and Ghyslaine McClure. 2008. Shake Table Testing of Museum Display Cases. *Canadian Journal of Civil Engineering*. 35, no. 12: 1353.

Podany, Jerry 2009 "Earthquake damage Mitigation for Museum Collections". 10<sup>th</sup> Anniversary 1999 Chi Chi Earthquake International Conference on Historical Building Restoration, September 21-23, 2009 Puli Taiwan

Podany, Jerry 2009 "Recent Developments in the Protection of Museum Collections from Earthquake Damage at the J. Paul Getty Museum". Prohitech Conference on the Preservation of Historical Buildings, Rome. June 21-24. Vol 1. p 731-736. Mazzolani, F. (ed) CRC Press.

Podany, Jerry "Earthquakes Are Inevitable but Damage Is Not: A Call For The Protection Of Cultural Heritage Collections From Earthquake Damage" in Convegno Internazionale Sulla Protezione dei Beni Culturali dal Danno Sismico: mitigazione sismica per le collezioni museali 2010 Centro Regionale perla Progettazione e il Restauro e per Scienze Naturali ed Applicate ai Beni Culturali Palermo, Sicily.

Podany,, Jerry (vol ed) Adances in the Protection of Museum Collections form Earthquake Damage. J. Paul Getty Musuem, 2007, Los Angeles

Yim, C.S. Chopra A and Penzflen J. "Rocking response of rigid blocks to earthquakes" Earthquake Engineering Structural Dynamics 8 (1980) 565-582

Zhu Z.Y. and Soong T.T. Toppling Fragility of Unrestrained Equipment. Earhtquake Spectra Vol 14 #4 Nov 1998

### For Disaster Response: see these online sources

#### **Introduction:**

*Building an Emergency Plan: A Guide for Museums and Other Cultural Institutions.* Compiled by Valerie Dorge and Sharon L. Jones 1999 http://www.getty.edu/publications/virtuallibrary/089236551X.html

### **Further reading:**

http://collections.paleo.amnh.org/9/risk-management-and-disaster-planning

https://www.nedcc.org/paper-conservation-at-nedcc/about

http://www.ala.org/Template.cfm?Section=libraryfactsheet&Template=/ContentManagement/ContentID=25420

http://cool.conservation-us.org/bytopic/disasters/

Kamba, N. Stabilization Processing: Multi-Organizational Co-Operative Project for Preserving and restoring Cultural Assets Damaged by Tsunami on March 11<sup>th</sup>, 2011. ICOM Japan, 2011.