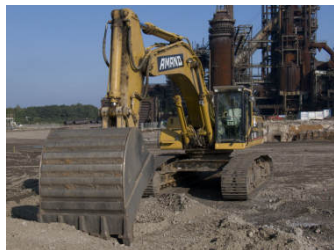


Vibrations due to Construction Works



Our knowledge is your benefit.

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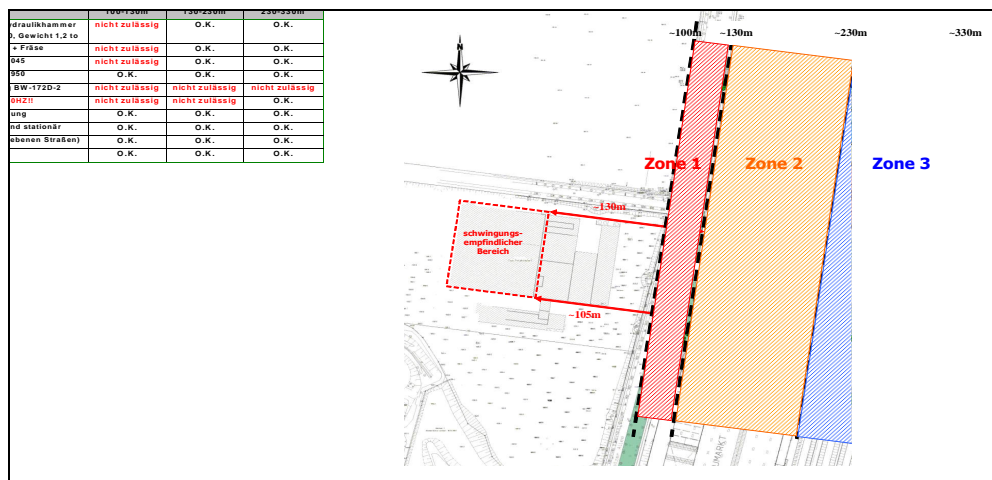
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Prognosis of vibrations levels due to work at building sites can be very helpful, not only in the case that the construction works are nearby vibration sensitive buildings. The prognosis of the vibration level for the used construction machines is based on measurement data. Considering the wave propagation of the soil, the site can be divided in different “zones”, in which the classified machines are allowed to work without any influences to the neighbourhood. The advantage is that the best construction technique can be chosen already during the planning phase in order to avoid expensive machine stoppage.

Example of a vibration prognosis based „zones“ map of the site:



Year Reference Projects (Extract)

2016 **Research Project EProg**

Development of an experts system for exact vibration prognosis concerning road and canal works. Research project in cooperation with the Magdeburg Stendal University. The project is government-funded within the ZIM programme.

2016 **WuH Lengerich**

Vibration Monitoring in the data processing centre during 6 month with deconstruction works within short distance to the servers.



<u>Year</u>	<u>Reference Projects (Extract)</u>
2016	Monitoring, Soest Vibration monitoring during deconstruction and foundation works. Vibrations were measured and evaluated for two neighbouring residential buildings.
2016	Station Renewal, Aachen Schanz Vibration study on the influence of platform construction works on the adjacent buildings.
2016	Johs. Stelten GmbH & Co. KG Monitoring of vibrations for five weeks to determine the cause of cracks in a storage building.
2014	MERCADEN Dorsten, Germany Überwachung der Erschütterungsimmissionen an einer Rohölleitung während Bauarbeiten für die Mercaden Dorsten.
2016	Station Renewal, Seehaslinie am Bodensee Investigation of vibrations during construction works on several stations of the railway track 4250.
2016	Station Renewal, München Investigation of vibrations during construction works on several stations of the railway track 5600.
2016	DB-Strecke Frankfurt-Eschhofen, Hangsicherung Investigation of vibrations during construction works for slope stabilisation near the railway track 6310.
2014	Residential Building, Ennepetal Vibration monitoring during construction works in a nearby residential building and assessment of the immissions.
2013	Viessmann VN, Dresden, Germany Vibration monitoring in the Advanced Mask Technology Center (AMTC), Dresden.
2013	Straßen NRW, BAB A448 Road Tunnel, Germany Vibration Measurements in residential buildings during construction works in the road tunnel below.



<u>Year</u>	<u>Reference Projects (Extract)</u>
2012	Culvert Construction Castrop-Rauxel, Germany Vibration investigation for the planned deconstruction of a culvert construction in Castrop-Rauxel.
2012	DLR Cologne, Germany Measurements and assessment of vibrations in a research building including laboratories and offices due to deconstruction works nearby.
2012	District heating pipeline, Dresden, Germany Evaluation of structural dynamics concomitant to the construction of a new district heating pipeline. Vibration prognosis by calculation and assessment of the expected immissions in the neighbouring Infineon buildings.
2012	BLB Dortmund, New building for the University Dortmund, Germany Prognosis and evaluation of vibration immissions in the nearest buildings due to construction works.
2011	Flood Control Measures Weserbahnhof, Bremen, Germany New construction of a quay wall and a flood control wall as replacement for the existing structure. Vibration evaluation of the expected immissions due to the construction work, vibration devices and pile hammers in particular.
2011	New Motel One in Düsseldorf, Germany Monitoring of vibrations in a neighbouring building during the deconstruction of existing buildings on the land plot where the new Motel One is going to be built.
2011	New gas pipeline near Bremen, Germany Investigation of vibration effects due to an new construction of a gas pipeline on several neighbouring buildings.



<u>Year</u>	<u>Reference Projects (Extract)</u>
2011	Deconstruction and new construction of a shopping mall in Dorsten, Germany Working area concept for both deconstruction and new construction of a shopping mall in Dorsten. Evaluation of vibration immissions due to construction works and its effects on a pipeline and a neighbouring building.
2011	Deconstruction of a Hochbunker in Hagen Haspe Measurements and monitoring of vibrations in a neighbouring residential building during the deconstruction of a Hochbunker.
2010	PSW Atdorf, Expert Report for ROV Assessment of structural dynamics for the regional planning process.
2010	Paulusanger, Recklinghausen, Germany Monitoring of vibrations in neighbouring buildings during 9 months of site preparing operations on "Paulusanger" site.
2010	AG Technikum Holz, Dresden, Germany Prognosis and proving measurements for the evaluation of site operation vibrations and their effects on a semiconductor fab.
2010	ENUS, University Bielefeld, Germany Assessment of vibration effects on neighbouring university laboratories due to building site operations. Prognosis of vibrations and development of a working area concept for site operations to minimize vibrations.
2009- 2010	Heinrich-Heine-Allee 12, Düsseldorf, Germany Monitoring according to DIN 4150 during 14 month of demolition and pit lining works.
2009- 2010	Marienplatz-Galerie, Schwerin, Germany Development of a site operation concept optimised for minimal vibration emission. Monitoring of vibrations in two buildings registered as historical monuments for 6 month while demolition works and earthwork operations took place nearby.



<u>Year</u>	<u>Reference Projects (Extract)</u>
2009- 2010	Bauhof Brake Vibration prognosis, assessment and monitoring for quality assurance during site operations for a new bank wall.
2009	New flood protection, Bremen, Germany Monitoring of vibrations for 4 weeks during pit lining for a new floodwall.
2009	Sparkasse Witten, Germany Preliminary enquiries concerning the effects of vibrations caused by refurbishment.
2009	Expert Report: Isartor, Munich, Germany Preliminary enquiries concerning refurbishment vibrations in a data centre within the same building.
2009	Assessment of building site vibrations in Castrop Rauxel, Germany Vibration measurements in neighbouring buildings to shafts of the former Graf Schwerin 1 2 mining facility during compaction works and earthworks. Evaluation of vibrations according to DIN 4150 part 2 and 3.
2007	Monitoring of a semiconductor factory, Dortmund, Germany During road works. The building area was divided in "zones" and the vibrations were observed in the frequency domain.
2006	Public Utility Company Dresden, Germany Vibration measurements during construction works and analysis of the influences to an adjacent semiconductor factory.
2006	Vibration monitoring during works on a water canal, Datteln, Germany Limit control according to DIN4150 Part 3.
2005	Extension of an ALDI administrative centre, Mülheim, Germany Preliminary examinations to define vibration limits and monitoring with alerting units during sheet piling works.

