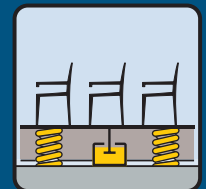
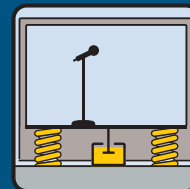
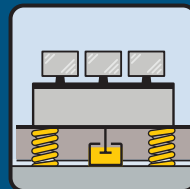
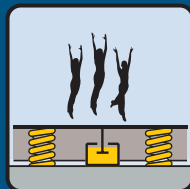
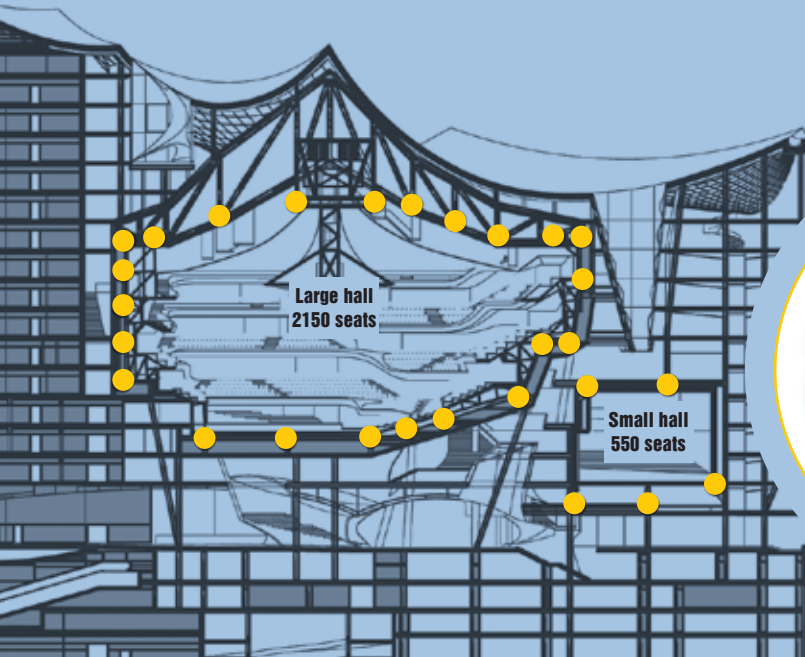


Floating Floors and Rooms





Elbphilharmonie, Hamburg, Germany

Floating Floors and Rooms

Floating floor and room structures represent state-of-the-art technology to control vibration and structure-borne noise within buildings.

This technology is used to separate TV, broadcasting or recording studios, recital & rehearsal rooms as well as halls, theatres, discos, fitness studios, and HVAC areas dynamically and acoustically from the surrounding environment.

For more than 50 years GERB has been innovating and developing spring elements for floating floor and room structures based on the application of steel coil springs. This system guarantees highest attenuation values due to extremely low system natural frequencies.

At system natural frequencies ranging from 7 Hz down to 2.5 Hz, GERB steel spring elements provide the most efficient solutions in protecting highly sensitive areas from mechanical vibration and structure-borne noise.

Mitigation of structure-borne noise and vibration starts at frequencies as low as 4 Hz thus giving the GERB steel spring system an important technical advantage over elastic pad material.

Basic Spring Element Systems

GERB offers a variety of spring element systems for floating floors and rooms. In addition to a large number of steel springs of different elasticity and load capacity, there are several element systems available designed for a wide range of applications:

1. Supporting Spring Elements

Supporting type spring elements arranged below the floating structure are designed to carry high and concentrated loads, and can easily be adjusted to the actual loads if required post installation.

2. Embedded “jack-up” Spring Elements

Embedded in the concrete slab, jack-up type spring elements are a preferred choice in terms of simplified installation, high flexibility, re-adjustability and low system height.

All spring elements can be provided with additional damping thus further improving the system’s damping and attenuation performance.



Anechoic chamber



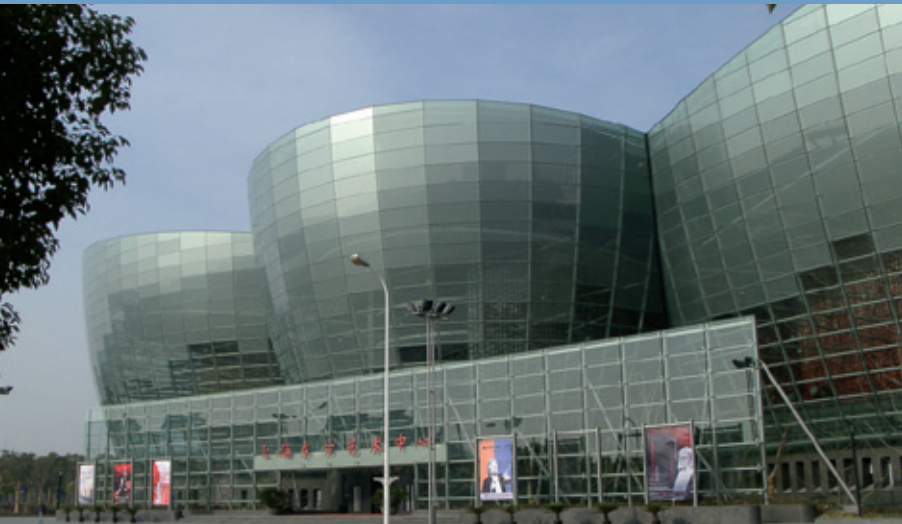
Spring support of an anechoic chamber



Museum Fondation Louis Vuitton with floating floors, Paris, France



Constructing a floating floor



Eastern Art Center with floating floors, Shanghai, China



Dance floor

Supporting Spring Elements

Supporting spring elements are simply arranged between the isolated and the non-isolated structure.

For supporting spring elements, a broad range of different types of springs is available to provide system natural frequencies as low as 2.5 to 7 Hz resulting in excellent vibration and structure borne noise mitigation performance.

Embedded “jack-up” Spring Elements

This floating floor spring element system* offers the following design features:

- A range of different types of springs is available to provide system natural frequencies as low as 2.5 Hz up to 7 Hz.
- One of the major benefits of this GERB spring system is its accessibility from above which allows for subsequent levelling of the floating slab as well as spring replacement with springs of differing capacities.
- In order to achieve uniform spring deflections, elements of different type and load capacity can be combined in a system layout to allow for different slab loadings.
- Slab construction and the installation of the springs are very simple. Apart from a bond-breaking plastic layer, there is no need for any bottom formwork. The slab is lifted directly from the substructure after the concrete has achieved its design strength.
- The jack-up and adjustment facilities are an integral part of every element.
- The elements can be equipped with a damping system in order to stabilise the floating slab and to further improve attenuation capacity at higher frequency levels.

*European Patent



Typical spring element for heavy loads



Recording studio with floating floor



Spring support of a TV production room



Fitness studio (Source:TVS)



"Jack-up" type spring element



Floating Floors and Rooms Reference List (Excerpt)

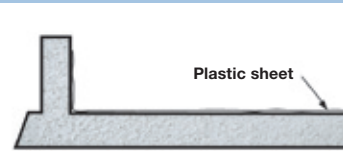
Country	City	Project
Australia	Sydney	Rehearsal Rooms
Austria	Vienna Wels	Acoustical Measurement Room Fitness Centre
China	Shanghai Shanghai Beijing	Oriental Art Centre Concert Hall-Auditorium National Theatre
Egypt	Cairo	Roller Coaster in a Hotel
France	Paris Paris Paris Lyon Nantes Paris	Citée de la Musique Bibliotheque de France Philharmonic Hall Acoustic Room Helipad Fondation Louis Vuitton
Germany	Berlin Berlin Dortmund Hamburg Hannover Mainz Munich Munich	3-story Discotheque Hotel Pool Conference Room TV Studios Helipad Broadcasting Studio TV Studio Discotheque
Great Britain	London London London	Auditorium Anechoic Chamber Fitness Centres
Greece	Athens Thessaloniki	Concert Hall Measurement Rooms
Hungary	Budapest	Computer Centre
India	Noida	Hotel Rooms
Netherlands	Amsterdam Den Haag Enschede	Offices at Shiphol Airport Discotheque Music Rooms
Russia	St. Petersburg	Photo-Laboratory
Saudi Arabia	Jeddah Dammam	Sound and TV Studios TV Studios
South Africa	Bophuthaswana	Control + Sound Rooms
USA	Nashville/Tennessee	Recording Studio

Spring supported helipad

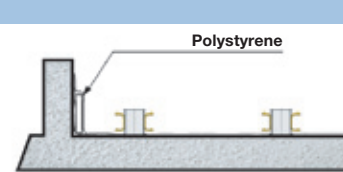


Installation procedure for embedded "jack-up" spring elements

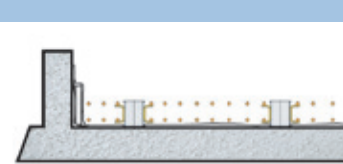
Phase 1: Placing of a plastic sheet on the supporting floor



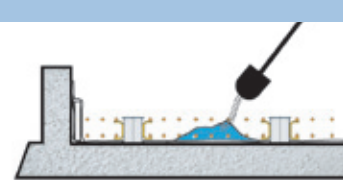
Phase 2: Placing of housings



Phase 3: Fixing of reinforcement



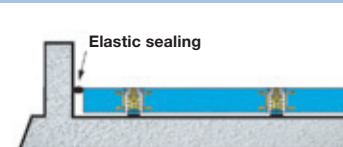
Phase 4: Pouring of concrete



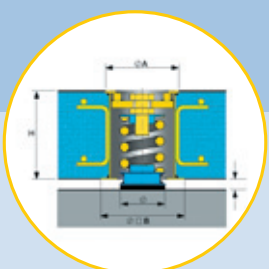
Phase 5: Installation of springs from top



Phase 6: Lifting of the slab and height adjustment



Final arrangement





Floating Floors and Rooms

For preparation of a design proposal please provide the following information:

- ▶ Purpose/Function of the structure
- ▶ Performance requirements
- ▶ Outline and other dimensional specifications, drawing
- ▶ Loads
- ▶ Description of the substructure, load capacity, constraints
- ▶ Other determinant items

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