

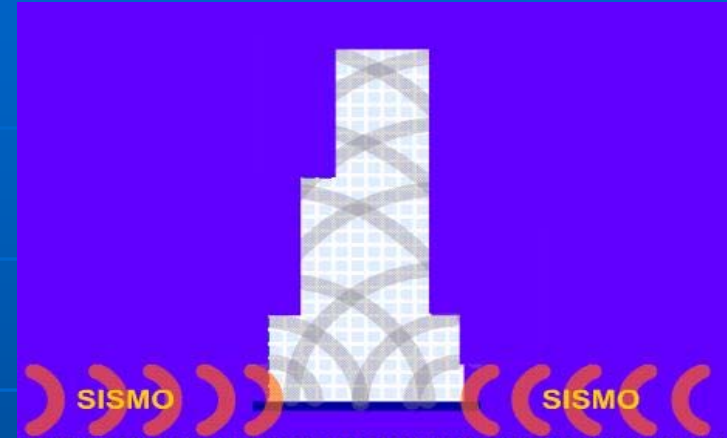
# EGEOMOL-AV<sup>®</sup>

Antiseismic and Antivibrating System

# Current Earthquake-Proof Systems

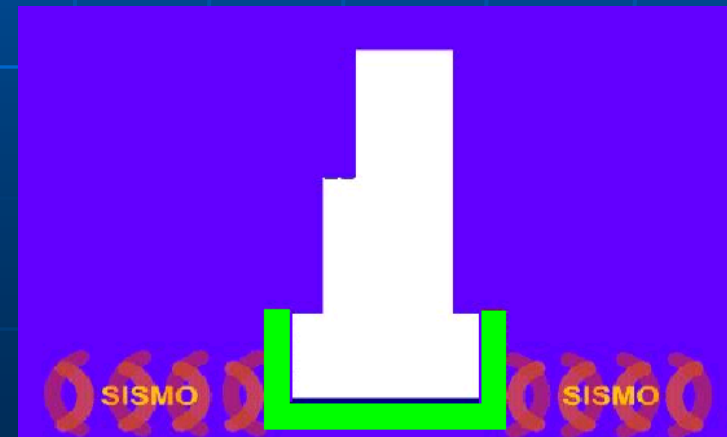
## ■ A) EARTHQUAKE-RESISTANT

- The seismic waves penetrate the building
- It gives the structure of "sufficient strength" to withstand the seismic effort
- Seismic energy does not disappear out into motion, deformation, breakage or heat



## ■ B) PASSIVE STRUCTURAL CONTROL

- Prevent seismic energy enters the building
- Are based on the buffer of seismic waves
- It made with complex mechanisms of high cost



# Antiseismic Systems of Passive Structural Control

## Advantages:

- Highly effective against the effects of earthquakes
- Protect the building and its inhabitants
- They provide greater security and durability of the building

## Disadvantages:

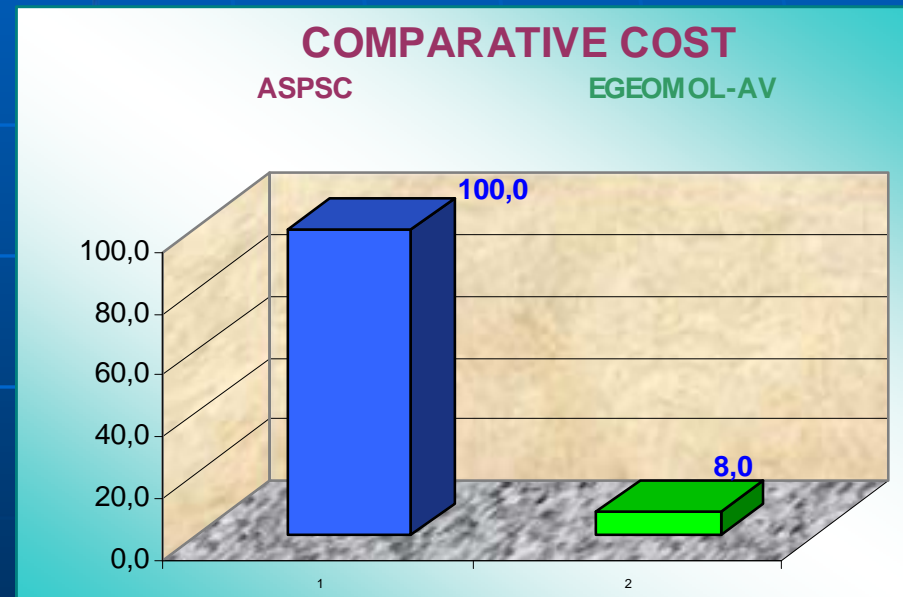
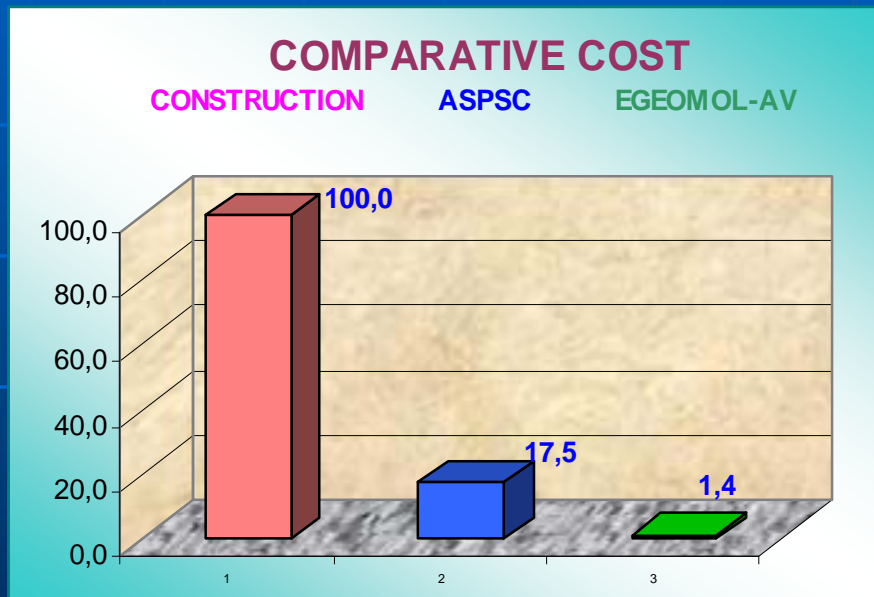
- Complex systems
- Difficult implementation and work
- Very high cost, feasible only for unique buildings

They are not viables for their high cost.

# EGEOMOL-AV<sup>®</sup> System:

It's an Antiseismic System of Passive Structural Control:  
Effective, safe and **LOW COST**

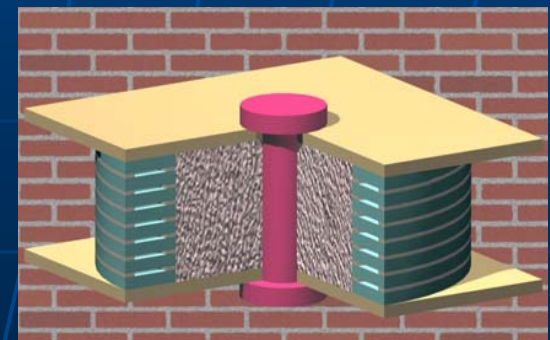
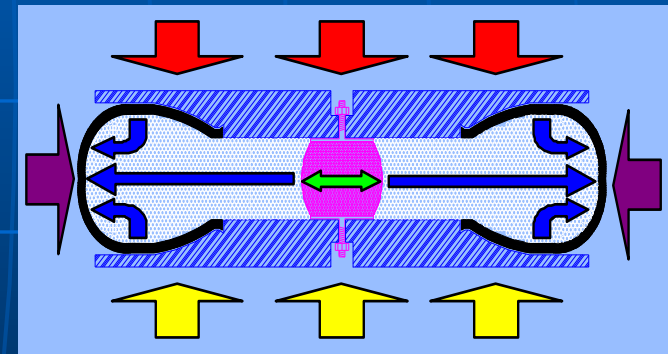
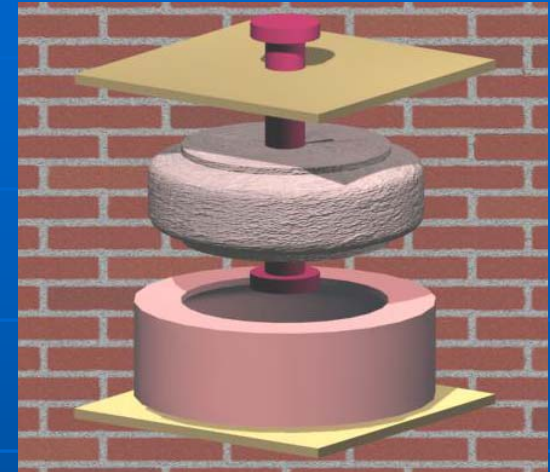
Viable for all types of buildings



Its **environmental component** is a value added

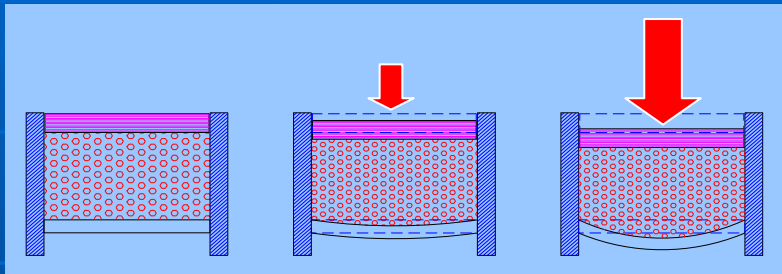
# System Description

- The unit Egeomol system consists of two plastic plates connected by a central silentblock, which houses an elastic clamp filled with a solid material with hydraulic properties.
- This solid granular material has the property to transmit pressure to the elastic clamp without losing tightness, reaching a pressure 10 times greater than it can bear as a conventional tyre.
- The units can be applied in series or in parallel, reaching optimum performance for all types of seismic frequencies.

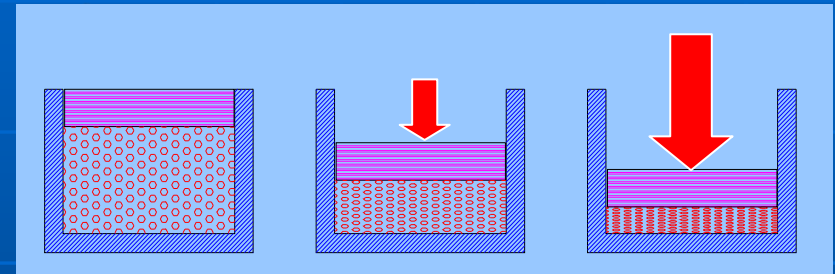


# Prominents Contributions of Patent EGEOMOL-AV®

## I. The solid granular with hidraulic properties



Performance equivalent to **liquid state**:  
**Rigid Particles**



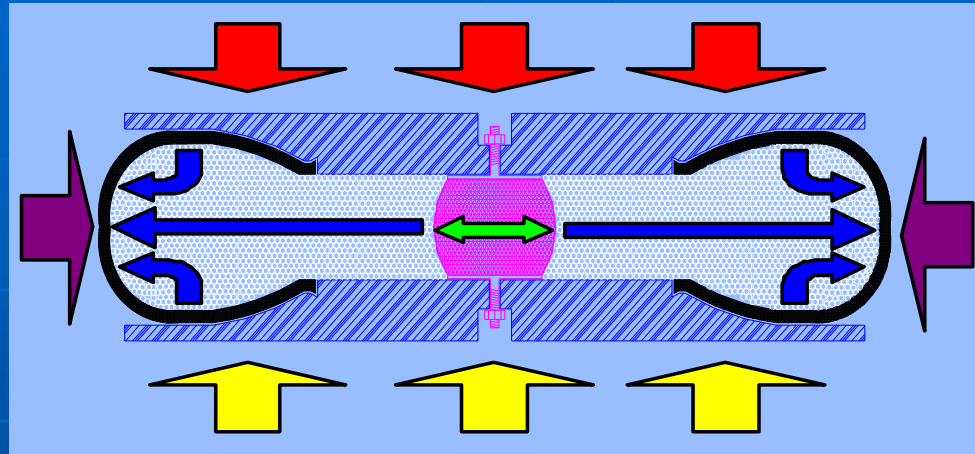
Performance equivalent to a **gaseous state**:  
**Elastic Particles**

The entry of a granular solid with hidraulic properties to the system brings to conduct equivalent to a gaseous or liquid state, because:

- The low friction between their molecules (partícles)
- The transmission of the pressure in all directions
- The elasticity of their particles

**Applicable to a wide range of Mechanical Hidraulic**

## II. Effect of prestressing and strapping of the elastic clamp



This effect **prestressing** and strapping of the pneumatic clamp:

- Increases the capacity of the system
- Improves its mechanical behavior
- Adjust the elasticity to recover the initial position after deformation



**Applicable to many fields of engineering**

III. It use **plastics** mechanical properties comparable to other materials of construction

The advances in technique in the field of plastic can achieve:

- Next resistance steel
- Rubber elasticity assimilable
- Ductility close to lead

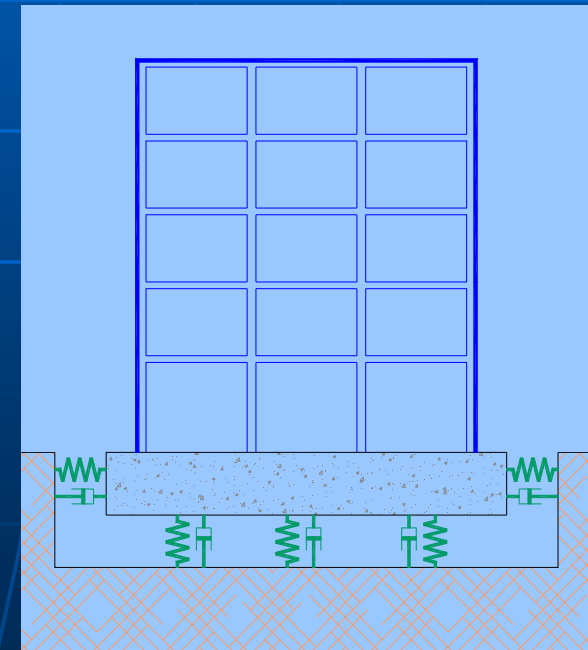
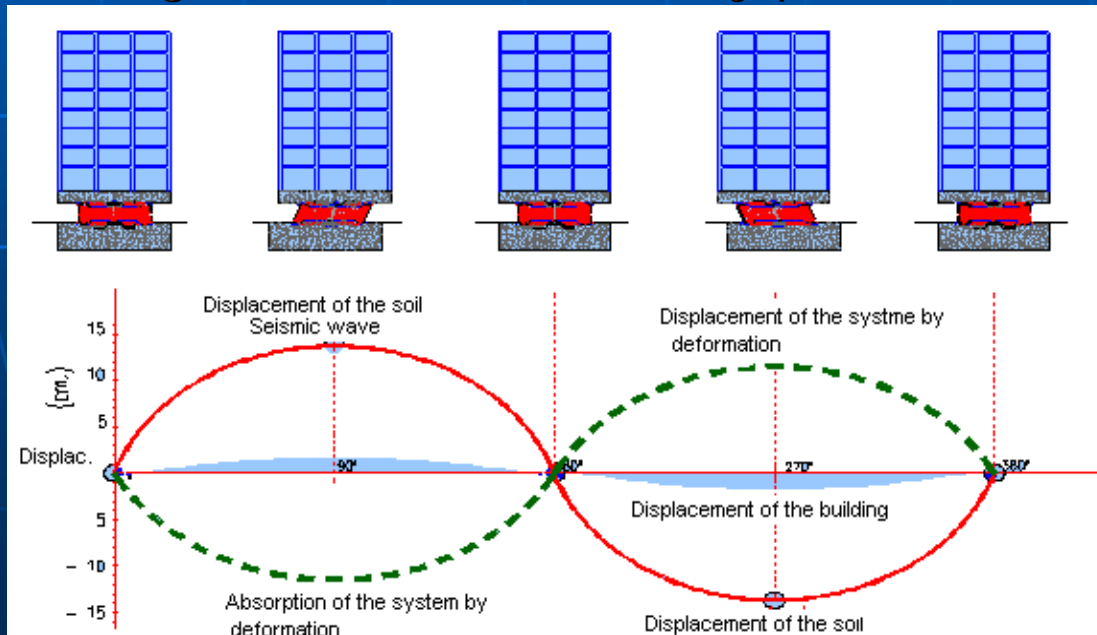
**Applicable to many fields of construction**

# Behavioural Seismic Pattern

It is comparable to a mattress insulation composed of a spring and a shock absorber, with sufficient elasticity to the building regain its initial position after earthquake

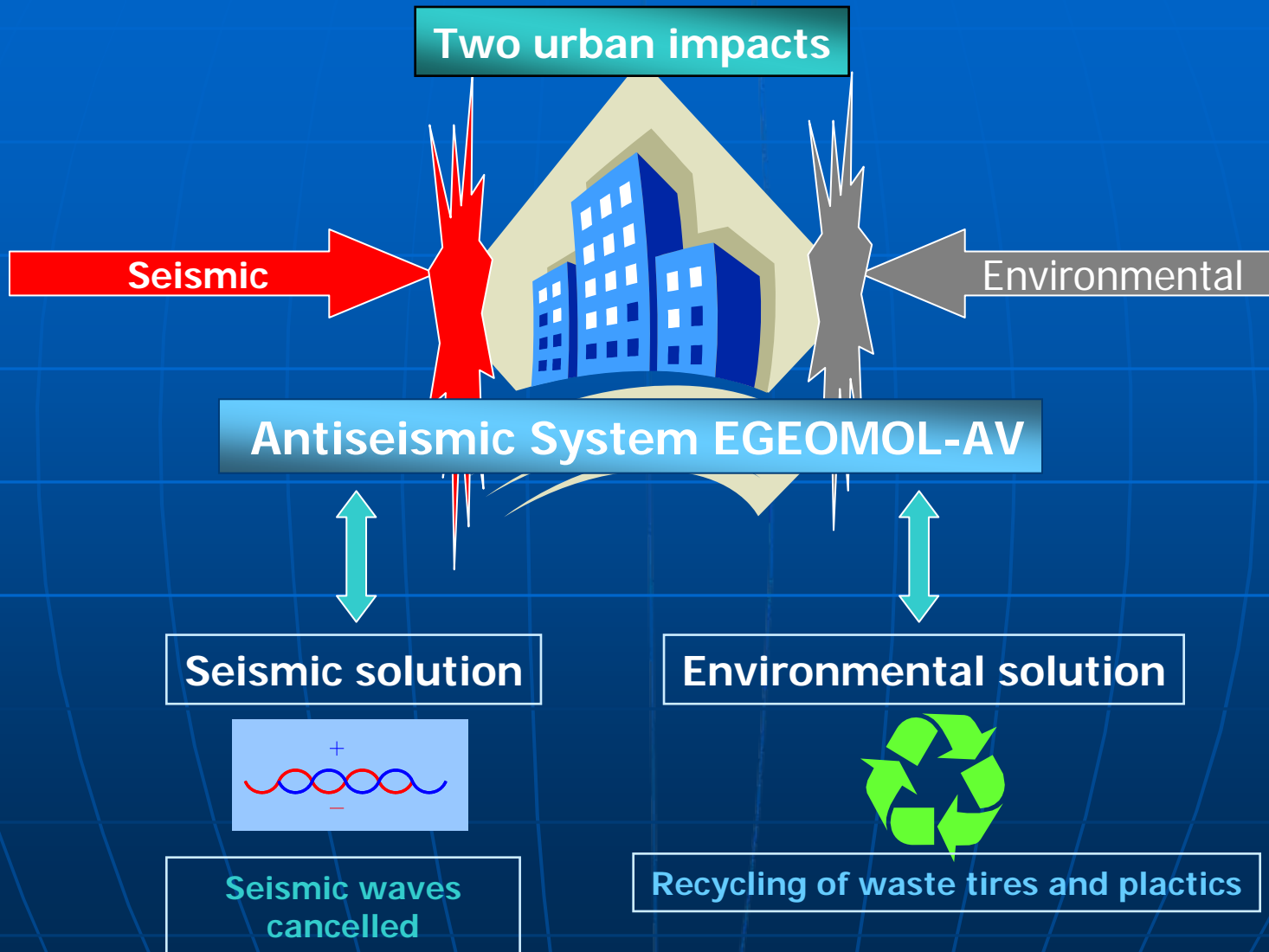
The system behaves like a capacitor energy, absorbing part of the seismic energy and reducing the displacement of the building

Uses the energy potential of the weight of the building to cancel the waves by phase inversion



Installed under the building to absorb the train of waves transmitted by the soil.

# Two Solutions in One



# System Security EGEOMOL-AV<sup>®</sup>

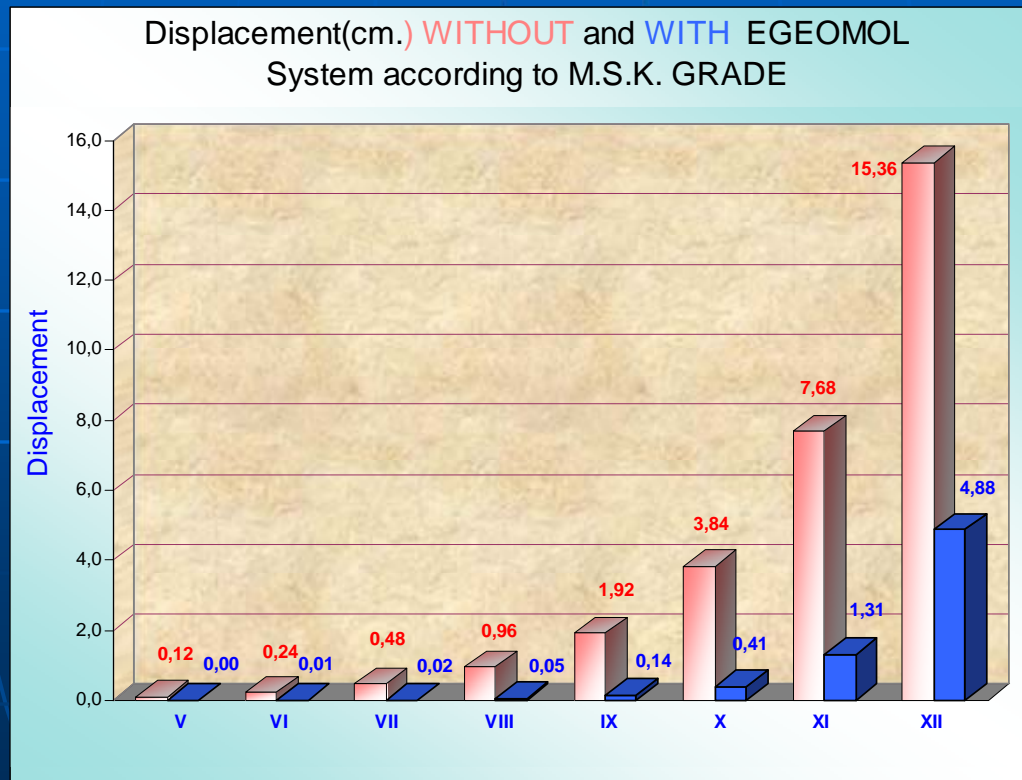


In tests conducted at the laboratories of the Universidad Politécnica of Valencia, have found that the system can withstand pressures of the order of 33 Kp/cm<sup>2</sup>, equivalent to the weight of a building of **100 floors**, with a **high safety margin**.



# Effectiveness of EGEOMOL-AV®

- The system absorbs and cancels seismic waves in order of:
  - 90% to a grade X M.S.K. (highly destructive)
  - 83% to a grade XI M.S.K. (extremely destructive)
  - 68% to a grade XII M.S.K. (the most destructive of the planet)



Compatible deformations with the structure and its function

# Simulation 1: Model EGGEOMOL-AV<sup>®</sup>



# Simulation 2: Model EGEOMOL-AV<sup>®</sup>



# Simulation 3: Model EGEOMOL-AV<sup>®</sup>



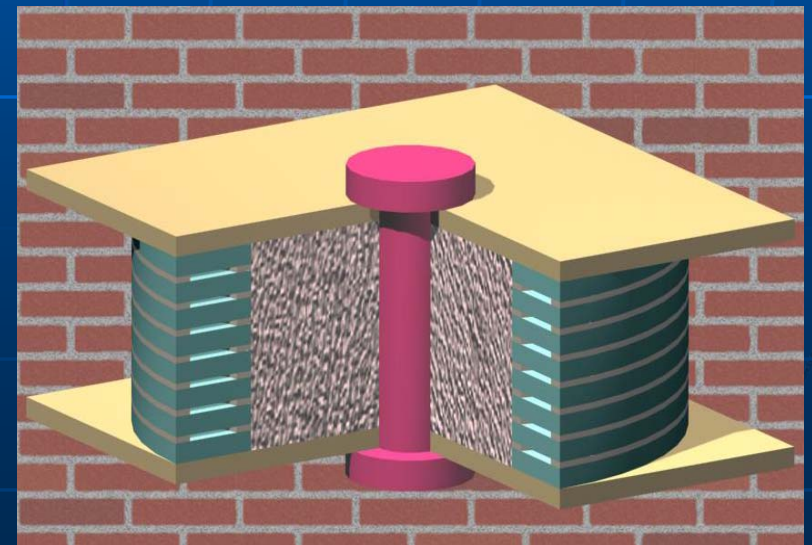
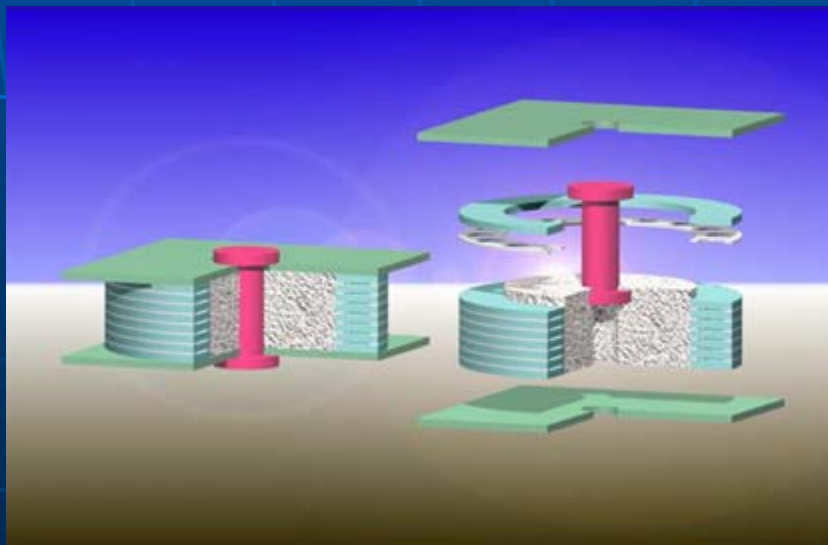
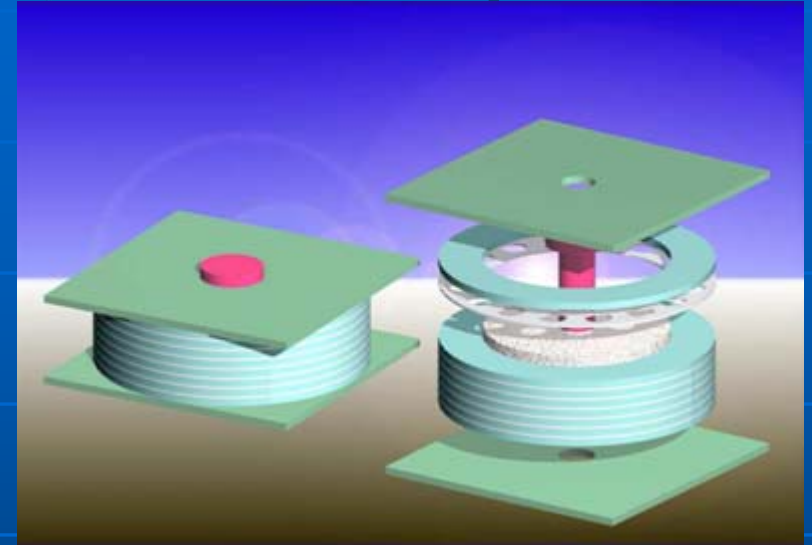
# Prototype System Description

Elastic clamp formed by rings with different elasticity

Filler solid material with hydraulic properties

Central Silentblock

The components are PVC



# System Description

The unit option - A refined EGEOMOL-AV ® system is composed of two steel plates and a clamp mechanism, which form a compression chamber. This chamber is packed with a granular solid with hydraulic effect that increases the capacity of the system. Modifies the damping factor on the horizontal displacement, depending on the displacement and the load. Completely avoids the loss of tightness of the compression chamber. You can reduce the resonant frequency of the system-building, with units in series.



# Proved Effectiveness

- In the vibrant slab of CEDEX's laboratories is causing seismic simulations higher than most destructive earthquake occurred on the planet.



- To prevent the virtual earthquake destroyed the building, the vibrant slab of 700 Tn is based in isolation with 16 tyres compressed air

- A technical solution of antiseismic insulation, equivalent to EGEOMOL System but with higher cost and maintenance



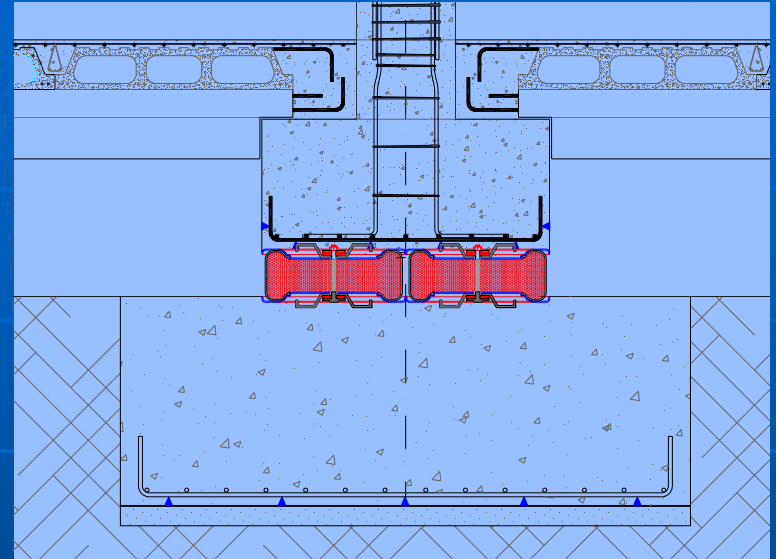
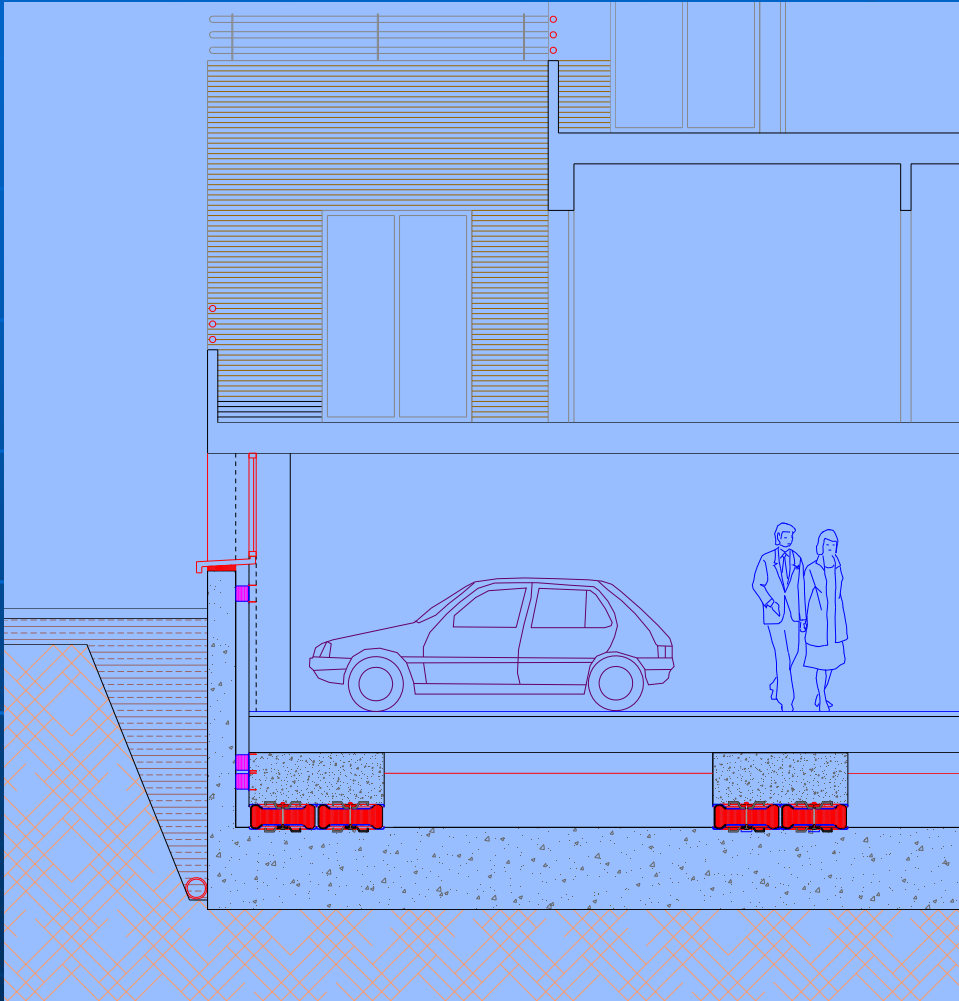
# Testing



Dynamic action test : Horizontal and vertical component



# Making Work



Its application and making work is simple.  
You don't need skilled workers

# EGEOMOL-AV<sup>®</sup> System is Applicable to:

- **Housing:** Detached and collectives
- **Public buildings:** Hospitals, schools, courts...
- **Civil constructions:** nuclears plants, bridges, dams, deposits...
- **Insulating vibrations of any issuer focus:** Undergorund, trains...
- **Silentblock for heavy machinery:** Stamping press, engines, vibrating...
- **Aerospace applications:** Replacing the liquid and gaseous components that suffer alterations by granulated solid with hidraulic effect

# EGEOMOL-AV<sup>®</sup>

# FEATURES

## ■ Efficient

- Absorbs and cancels up to 90% of the seismic waves to a grade X (M.S.K.)
- High margin of safety and durability
- Simple with immediate response

## ■ Ecological

- Uses tyres used
- Materials recycled plastic
- Environmental contamination void

## ■ Economical

- Low- cost components
- Easy application and implementation work
- Zero maintenance

**EGEOMOL-AV<sup>®</sup>**  
**ADVANTAGES FOR**  
**INVESTORS**

# Reliable, Durable and Maintenance Avoid System

The **composition** and **design** of EGEOMOL-AV<sup>©</sup> system and its application between the foundation pile and soil to shelter from the ultraviolet rays, with minimum levels of oxygen and without significant changes in temperature and humidity, gives:

- High **security**: Apply to buildings of more 100 floors
- A greater **durability than** building itself
- A zero **maintenance**

# Project without Competition that satisfies Basic Needs

- The antiseismic system match EGEOMOL-AV<sup>®</sup> are **prohibitively expensive**, only viable **singular buildings** of developed countries like USA and Japan
- The application of EGEOMOL-AV<sup>®</sup> system, is protected by a **solid patent field world**
- Satisfy **basic needs** such as SECURITY and the protection of **LIFE** and PROPERTY

# Its extensive and emergent market has several applications

For its low cost and flexible application, the market is extensive and emergent, viable:

- In rich and poor countries, and in different areas of seismic risk
- In all type of constructions: Housing, public buildings, civil works...
- As insulating vibrations of any issuer focus: Heavy machinery, hydraulic presse, underground, trains...
- Including aerospace applications, changing the liquid and gaseous components that suffer important alterations, by solid granular with hydraulic effect

# Reduced investment with high profitability

The initial investment is low, allowing implementation of a high profit margin for:

- The low cost of its components
- Ease of manufacturing
- Simply making work

# Contribution to Environmental Balance

It brings:

- Access to grants, subsidies and institutional supports
- An improvement of the image of the company which promote
- Social support an the Media

# Self-Funding Application

- For a real reduction in the share of the building **insurance** (BONUS)
- For a reduction in the cost of **building's maintenance** during its useful life
- Because by increasing the useful life of the building, **reducing shares depreciation**

# EGEOMOL-AV®

- Comprehensive and emerging market
- Low investment and high profitability
- Limited control of costs
- Legal protection under a solid global patent field
- Social and environmental contribution

**A VIABLE INVESTMENT AND HIGH  
PROFITABILITY**

**OF INTERESTING ECONOMIC, SOCIAL  
AND ENVIRONMENTAL**