

## Global Structures with HDNRB



**USC University Hospital, California, USA**

Completed in 1991 at a construction cost of US\$50 million, the seven-storey high building sits on 149 rubber anti-seismic bearings; with the cost of the bearings being only 1.5% of the total construction cost.



**Second Penang Bridge, Penang, Malaysia**

The second longest bridge in Southeast Asia. More than 2,000 units of HDNR bearings were installed on this cable-stayed bridge, connecting Penang Island to Mainland Malaysia.



**Aston Hotel, Medan, Indonesia**

Twelve Storey Aston Hotel in Medan was the 2nd Indonesian building on HDNR bearings. The building was completed in 2010 and sits on 25 bearings.



**West Japan Postal Computer Center, Sanda, Kobe Prefecture, Japan**

Built in 1986, this six storey building exhibited excellence performance during the Kobe earthquake. In 2002, it was the largest base-isolated building in the world.

# Build Safer, Sustainable Structures. Build A Better Tomorrow.



## MRC Global Offices



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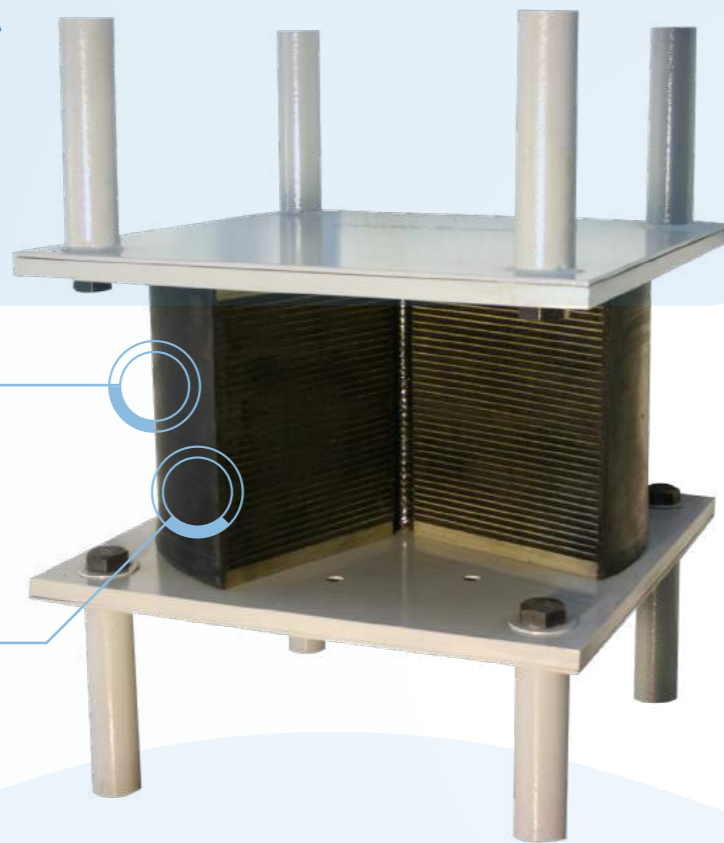




# High-Damping Natural Rubber Bearings

The High-Damping Natural Rubber Bearings (HDNRB) is the method used for base isolation where the structure is separated from the base limiting the energy transferred to the structure during an earthquake.

The rubber and steel laminated bearing in the HDNRB are designed to support the weight of the structure and provide post-yield elasticity.

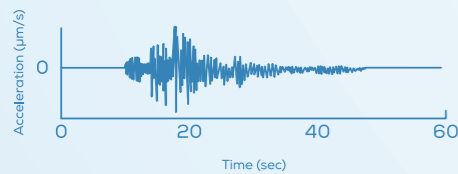
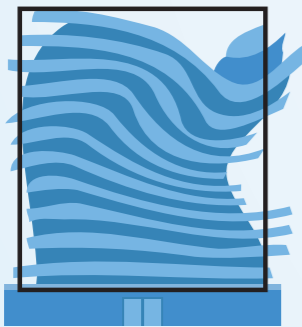


## Reinforcement Steel Plates

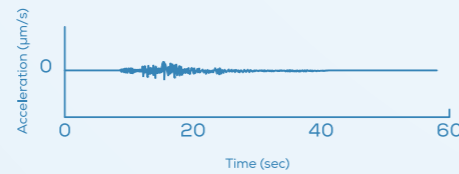
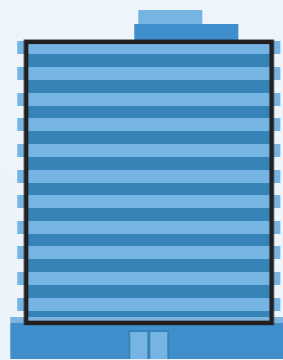
The steel plates are fully embedded and sealed within the elastomeric (natural rubber) material, protecting the plates against corrosion

## Natural Rubber

High-quality natural rubber is used to develop suitable rubber compounds (soft, normal, hard) to satisfy different design requirements.



Conventionally Designed Structure



Structure on HDNRB

## Protecting Structures from Seismic Activity

High-Damping Natural Rubber Bearings (HDNRB) is the most widely used seismic isolation system within structures and have proven effective in numerous earthquakes worldwide.

In the event of an earthquake, the superstructure responds as a rigid body, with deformation occurring in the bearings as opposed to the foundation of the structure. They are increasingly used for base isolation of buildings, bridges and other structures in areas with high seismic activity.

# INNOVATIVE



## Extensive Product R&D



HDNRB was developed by the Malaysian Rubber Board (MRB) in the late 70s as part of a joint effort with the University of California, Berkeley. HDNRB can be used during the construction of new structures or for retrofitting existing structures, such as buildings and bridges.

# MAINTENANCE FREE



## Unaffected By Time & Environmental Wear

HDNRB have no moving parts and is therefore virtually maintenance-free whilst being unaffected by time and environmental wear.

# EFFECTIVE



## Protects Structures & Contents

HDNRB protect structures and their contents from earthquake damages. This is especially important for public infrastructures that contain expensive equipment such as hospitals.

## Advantages of Made in Malaysia HDNRB

# SUSTAINABLE & SOCIAL



## Safer & Sustainable Solution

HDNRB is made from natural rubber (NR), an environmentally friendly material, providing high resistance against mechanical wear and corrosion.

# GOOD QUALITY



## International Standards

The labs of Malaysian manufacturers are accredited by ISO/IEC 17025. Made in Malaysia HDNRB are tested to conform to international standards including EN 15129:2009.

MALAYSIA: OVER **140** YEARS OF EXPERIENCE  
In the Rubber Industry



Experienced. Reliable. High Quality.