

Development of Compact Seismic Isolator (Low Cost Roller Type Device)

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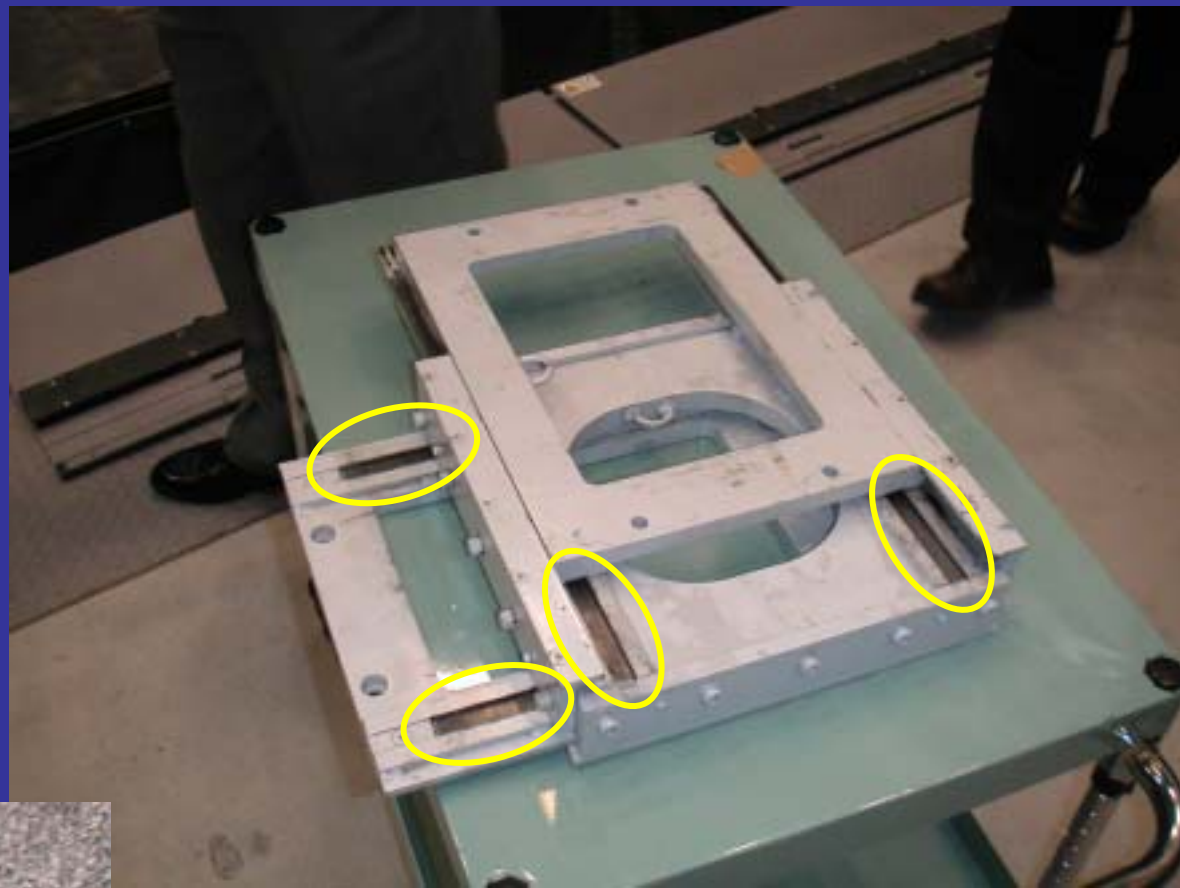
Project Basic Concept

- Compact and light (hand-carried)
- Low cost (using common material – steel)
- Simple maintenance
- Meet varied needs

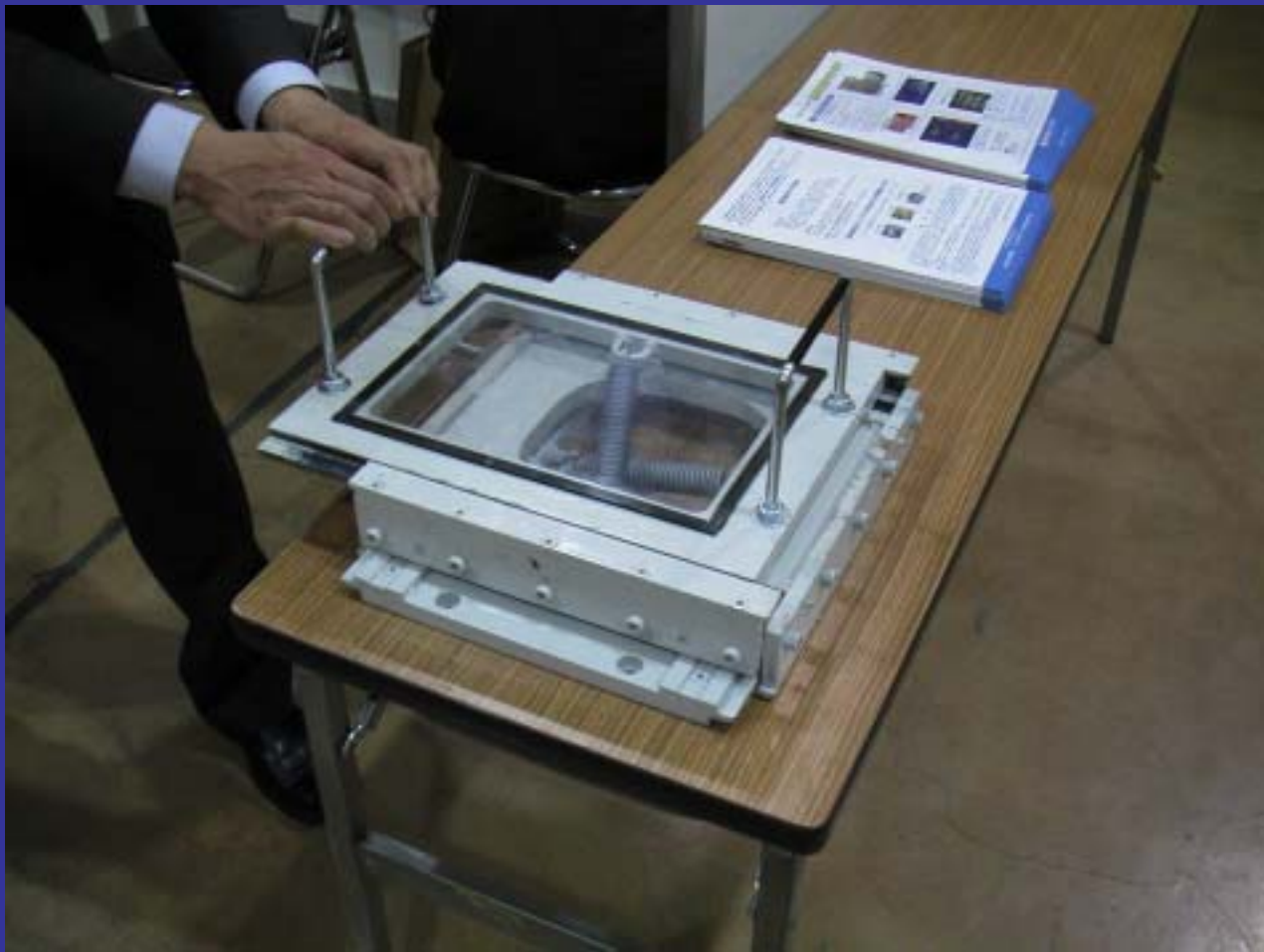


Project Team

- Hokkaido Northern Regional Building Research Institute
- DPS Bridge Works Co. Ltd.
- NEC System Integration & Construction, Ltd.
- Yasuo Aoki
- Yuji Ishiyama



Basic mechanism
Steel rollers are installed
in the indented rails



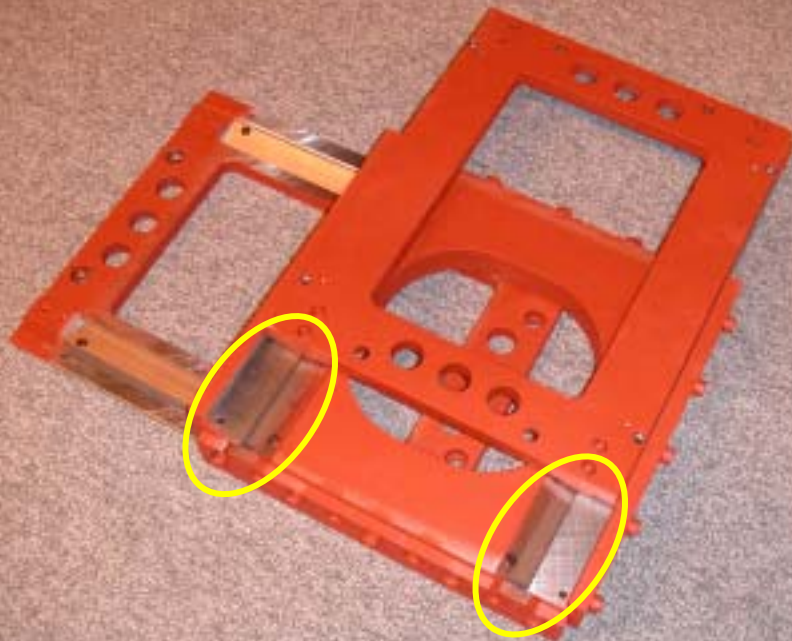
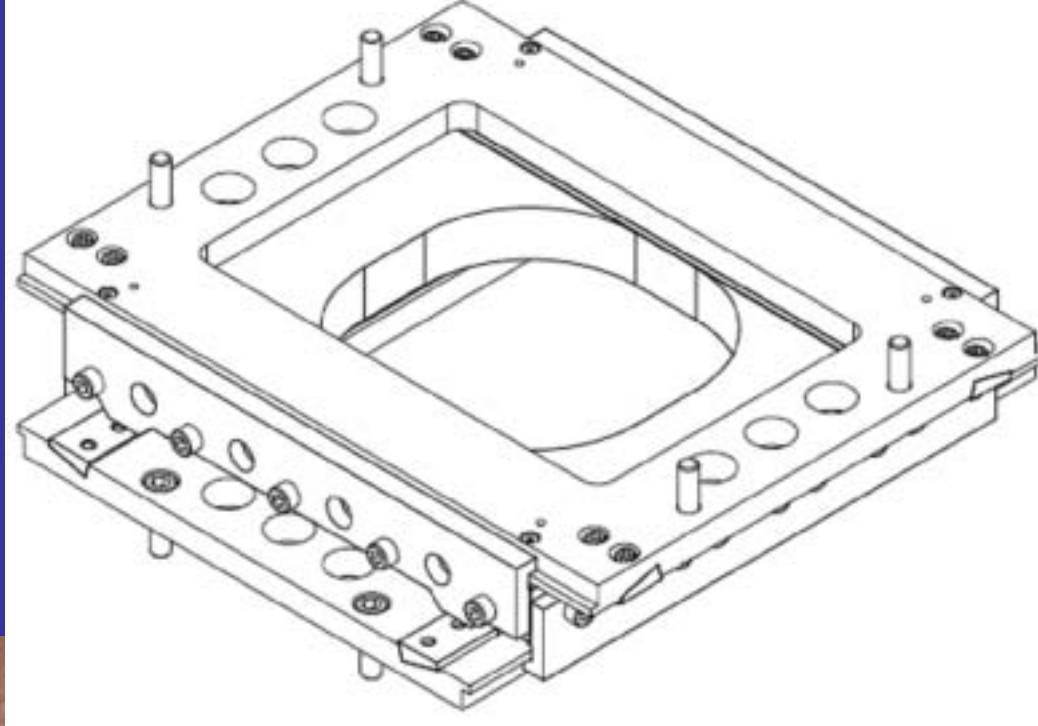
Prototype Isolator

Size : 30 × 30cm

Displacement : ± 20 cm

Mass : 30kg

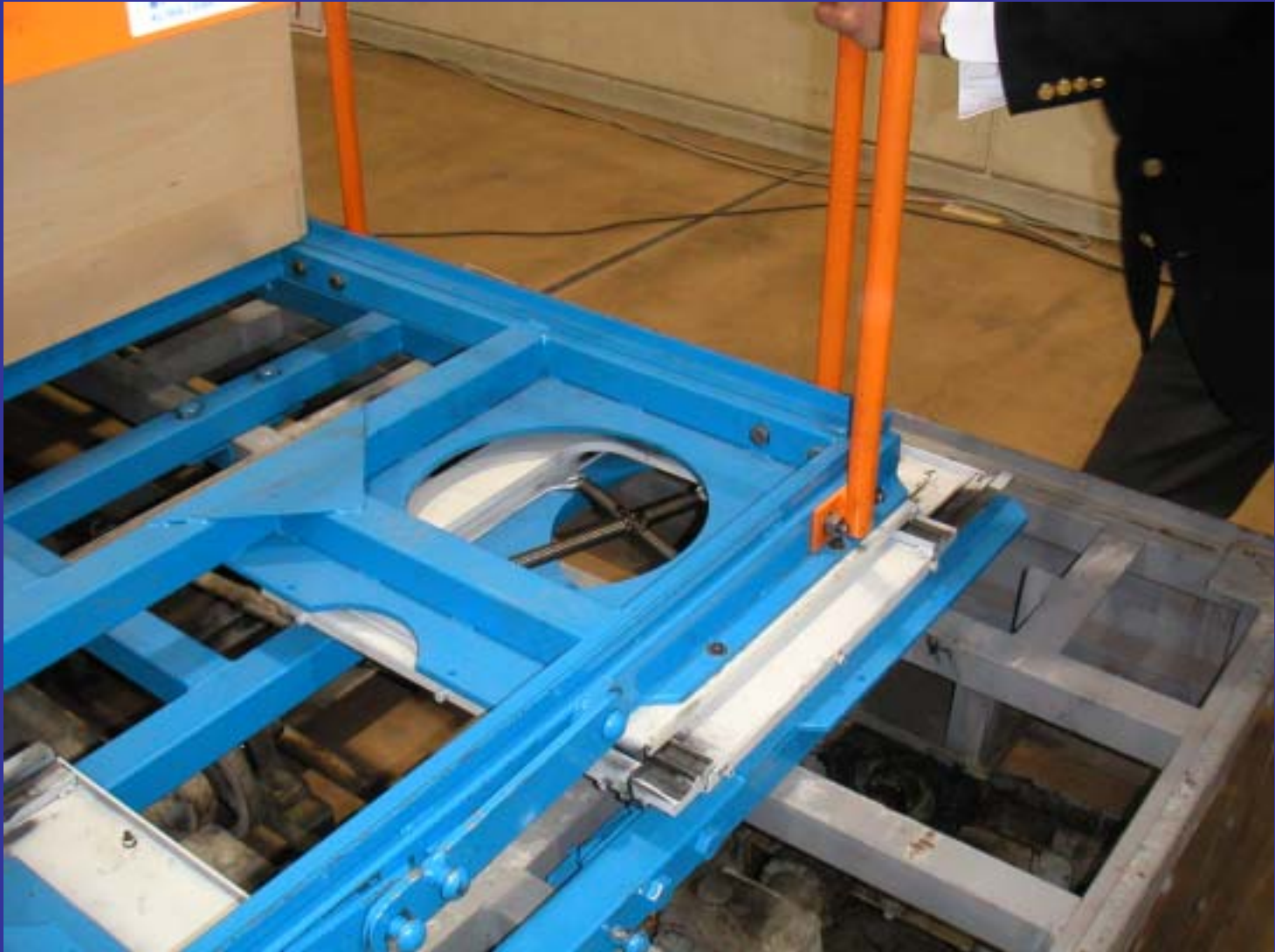
Load : 5ton



Modified prototype
isolator
(indented rails are
inclined each other
for smooth
movement of rollers)



Demonstration of isolators
using a shaking table



Isolator installed at the corner of the table



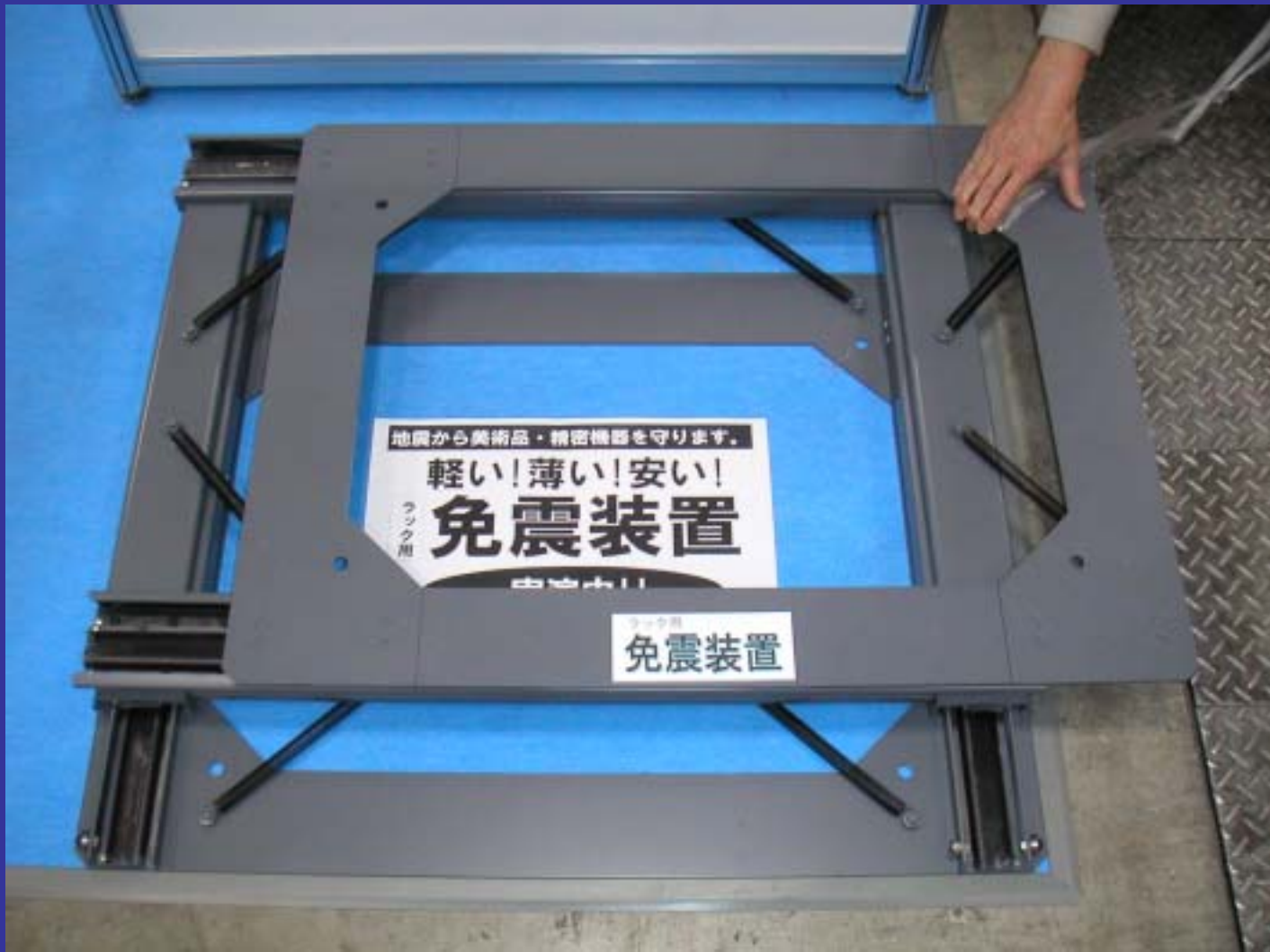
Isolator for the shaking table and prototype isolators (upper two)



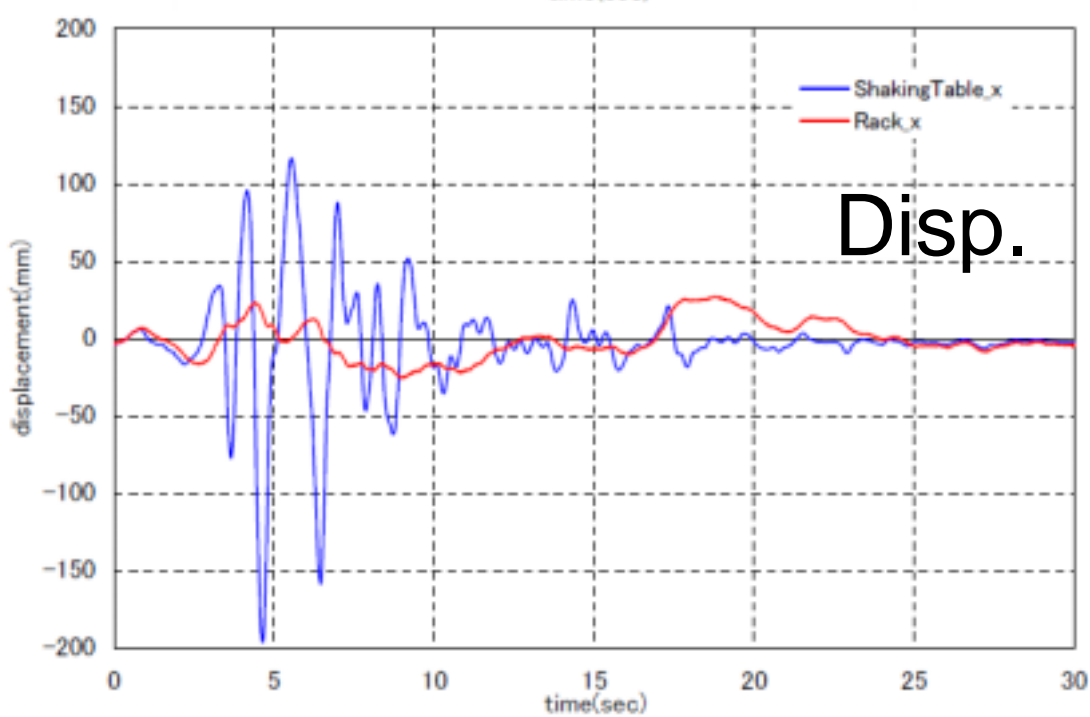
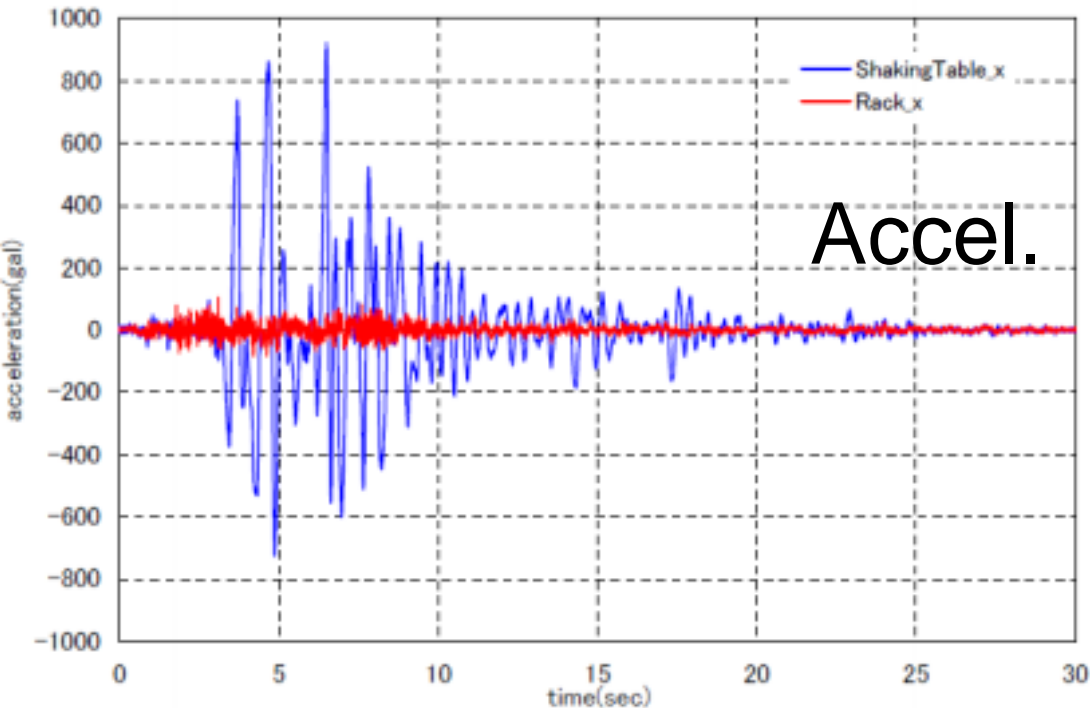
Isolator for computer server

Application of the
isolator to the
showcase of Fukuoka
City Museum
(horizontal and vertical
isolation)





Thin plate isolator for computer server
(70 × 90cm, ± 50cm, 75kg, 1.3ton)



Acceleration is reduced to 1/10 and the displacement is reduced 1/7 by using the isolators. (JMA Kobe during 1995 Kobe EQ)

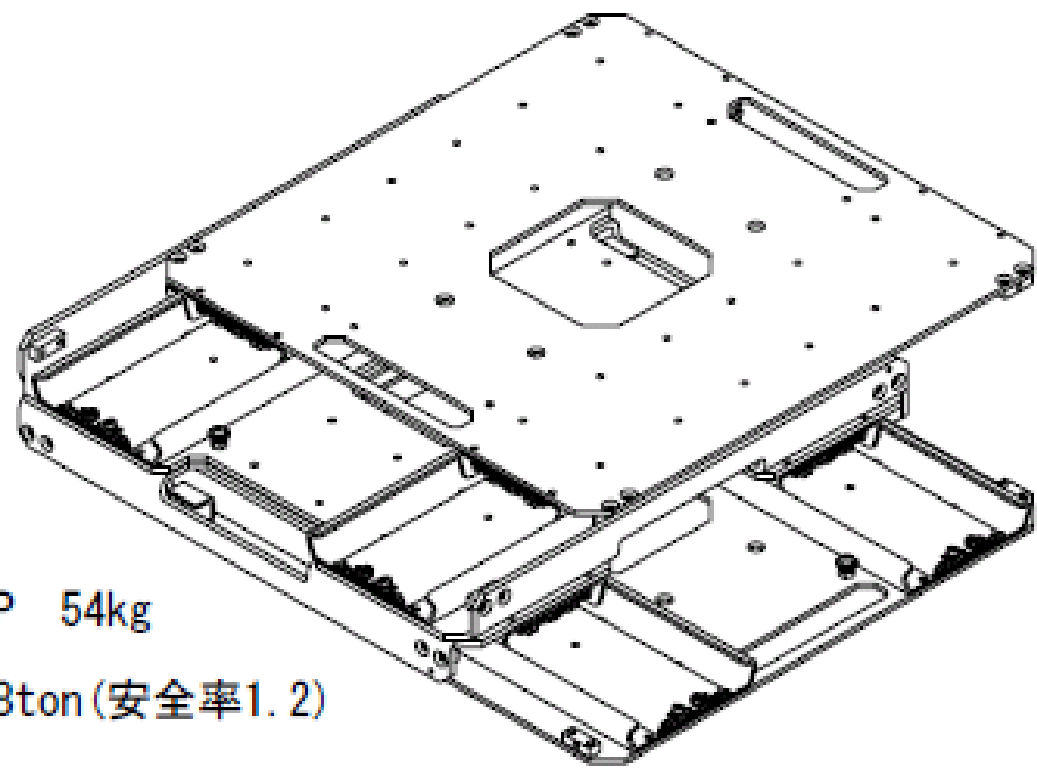
Shaking table tests of a housing model with prototype isolators



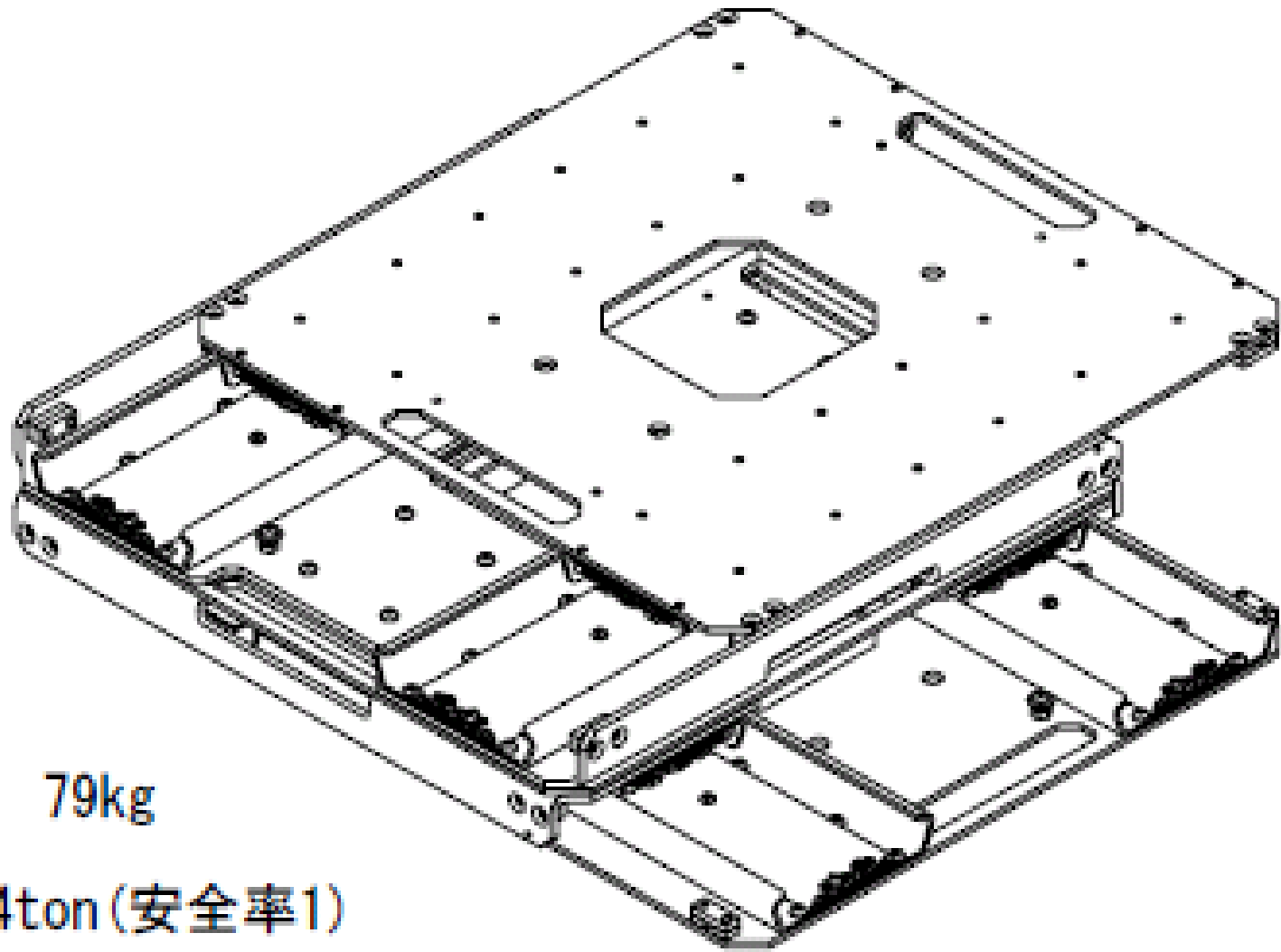


CP 54kg

8ton (安全率1.2)



Thin plate isolator for houses
(50 × 50cm, ± 45cm, 54kg, 8ton)



CP 79kg

24ton(安全率1)

Thin plate isolator for houses
(50 × 50cm, ± 45cm, 79kg, **24ton**, using
thicker plate and high strength steel)

Application to Japanese traditional wooden houses (attachments of isolators to sills)



Application to existing wooden houses



Thank you
for your attention