

Can buckling-restrained brace be used in earthquake-resistant design?

Explore some innovative applications of BRBs in earthquake-resistant design of buildings. As an earthquake-resistant structural element, buckling-restrained brace (BRB) not only adds strength and stiffness but provides excellent energy absorption capability to a structure.

Can earthquakes bolster the resilience of building structures?

Earthquakes, one of humanity's major natural challenges, are notoriously unpredictable and sudden, making accurate forecasting a formidable task. In response, researchers have devised a range of techniques to bolster the seismic resilience of building structures, achieving commendable progress in recent years.

Can a BRB withstand a small earthquake?

The core brace of a BRB is designed to yield under large earthquakes, but remain elastic for small earthquakes. Since energy dissipation is not effected until yielding occurs in the core brace, the use of viscous dampers (VD) to dissipate energy under small earthquake excitations may be beneficial.

Do steel braces protect against earthquakes?

The use of damping devices has gained popularity because they have been proven to be effective against severe structural damage from large earthquakes. Steel braces are often used for seismic design and retrofit of steel frame structures. Steel braced frames have been shown to exhibit good seismic performance under strong earthquakes.

What is the difference between earthquake-resistant systems & post-earthquake systems?

In conventional earthquake-resistant systems, attention is focused on the response of the structure to code-level seismic demand whereas, in SSD, the post-earthquake attributes of the system are as important as those during the event. SSD is neither part of contemporary curricula nor codes of practice.

Can steel braces be used for seismic design & retrofit?

Steel braces are often used for seismic design and retrofit of steel frame structures. Steel braced frames have been shown to exhibit good seismic performance under strong earthquakes. However, as shown in Fig. 1, steel braces are prone to buckling under strong dynamic loads caused by earthquake and wind.

et al. conducted research on column biaxial solar photovoltaic brackets, studying the structural loads at different ... and uses the finite element method to analyze the stiffness and strength of ...

1 ??· This study evaluates the environmental impact of earthquake-resistant structural design choices in high-risk seismic regions through life cycle assessment. As climate change ...

Special article on earthquake resistance of photovoltaic brackets

Aluminum alloy has the characteristics of corrosion resistance, lightweight, beautiful and durable, but its self-bearing capacity is low, so it can not be applied to the solar power station project. Steel support is widely used in ...

Ensuring the durability of materials, long-term stability, structural reset capability post-earthquake, resistance to base subsidence, reliability in technical index calculations, and ...

Recent research has shown that connections are not reliable when subject to cyclic loading, such as results from earthquake attack. Connections in steel frames deteriorate due to local ...

This article promotes the notion that a structure can be seismically sustainable if it is able to prevent actual collapse, overcome residual effects and lend itself well to PERR. In ...

As an earthquake-resistant structural element, buckling-restrained brace (BRB) not only adds strength and stiffness but provides excellent energy absorption capability to a ...

<trans-abstract abstract-type="key-points" xml:lang="en"><sec>[Introduction] There are abundant solar irradiation resources in Guangdong coastal areas. In order to make ...

This review article aims to provide a comprehensive overview of earthquake-resistant design strategies specifically tailored for tall structures, drawing insights from global ...

Under three typical working conditions, the maximum stress of the PV bracket was 103.93 MPa, and the safety factor was 2.98, which met the strength requirements; the hinge joint of 2 rows ...

Wind loading is a crucial factor affecting both fixed and flexible PV systems, with a primary focus on the wind-induced response. Previous studies have primarily examined the ...

Special article on earthquake resistance of photovoltaic brackets

