[Çağrılı Tema Sunumu]

SEISMIC CONTROL

U.E. Dorka[1]

[1] *Professor, Civil and Environmental Eng. Department, Universität Kassel, Germany*
Email: uwe.dorka@uni-kassel.de

ABSTRACT:

Correctly applied structural control principles lead to superior performance, robust behavior and improved economy of structures under seismic action. This will be demonstrated on four seismic control concepts: Base isolation, Hyde system, Tendon system and Pagoda system. All of them control rigid body mechanisms, which is key to a drastic reduction in forces and displacements since potential and kinetic energy entering the system are drastically reduced in comparison to conventional structures, which are prone to dynamic amplification.
Because forces are under control, very efficient stiffening systems can be used and regular quality control is sufficient: particular attention needs to be paid only to the connections of the control devices. These devices can be active, passive or semi-active, but simple passive devices like shear panels usually provide the necessary control at low costs. This translates into structures, which are more economical than conventional systems.
Care must be taken not to confuse structural control with added damping or added damping and stiffness, which typically increases the costs. Unfortunately, this is often the case, although the principles behind both approaches are very different.

KEYWORDS: Structural control, hyde system, base isolation, tendon system, pagoda system.