

THE INFLUENCE OF PARTITION WALLS ON THE
RIGIDITY OF FRAME STRUCTURES

by

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SYNOPSIS

In design practice of the frame structures, it is common to consider the partition walls as no structural elements. In the case of surrendering of these structures to seismic actions it is observed that dynamical response was influenced particularly by the partition walls. The paper consist of deterministic interpretation of the response of frame structural model with and without partition walls.

CONTEST

The selected model represents (in a one to six scale) a three - - stories reinforced concrete structure with frames in two principal directions and concrete floor slabs. The model was subjected to static - and dynamic tests. Afterwards, stiffening elements (partition walls) - were added to the model in the direction parallel to the applied load . The static and dynamic tests were repited on this modified structure.

Finally the stiffening elements were removed only in the first - floor of the model and the same set of test was carried out. The sta - tic tests were performed applying a monotonically increasing load at the frame nodes. During the dynamic tests, the base of the model was subjected to free vibrations and sinousoidal exitations with variable - frequencies and amplitudes.

The stiffening elements were idealized for structural analysis in two ways; as diagonal bars hinged at the ends, and as infil panels.

The conclusion of this study was that the stiffening elements may be taken into account in the structural analysis and that they affect - the static and dynamic response of the structure to horizontal loads.

Applying this mathematical model it is possible to study behaviour of the structure in cases of removal or addition of some stiffening ele - ments detecting possible unsave situations.

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