

Center of rigidity for semi-rigid diaphragm

What is the center of rigidity for a semi-rigid diaphragm?

Answer: [Center of rigidity](#) is only applicable to rigid diaphragms because in-plane slab deformation is variable across laterally loaded semi-rigid diaphragms. During computation, an arbitrary coordinate is selected and loaded, then center of rigidity is derived, as a function of stiffness, according to the displacement at this specific point. If a diaphragm [constraint](#) is not applied, displacement at any point will also depend upon variable local membrane deformation. As a result, no unique solution is available for center of rigidity since formulation assumes that all [joints](#) translate together in planar motion.

Regardless of diaphragm type, the eccentricity inherent to changes in [mass](#) centroid and stiffness centroid is automatically included in analysis.

The definition and formulation for center of rigidity is given in the [Center of rigidity](#) article.