

Classification of strengthening interventions according to the Italian building code (NTC 2018)

Three different categories of interventions are defined:

1) Repair or local strengthening: the repair interventions aim at restoring the structural members to its pre-damage conditions. The local strengthening interventions are meant to increase the strength or deformation capacity of deficient components without affecting the overall response mechanism of the structure. Indeed, the global analysis to check the attainment of a specific performance level is not required, provided that global mass and structural stiffness are not significantly affected by the local strengthening intervention.

2) Strengthening interventions:

2.a) Strengthening interventions without achieving the safety levels prescribed by the current code for new buildings

2.b) Strengthening interventions aiming at reaching the safety levels prescribed by the current code for new buildings

When an intervention cannot be classified as local strengthening, it commonly involves a significant modification of the structural system (significant change of mass, stiffness, structural damping, and thus, in general, of the dynamic properties of the structure). Common approaches mainly include: insertion of shear walls, RC or steel jacketing, steel (dissipative) bracing, and base isolation.