City of Walnut Creek

Development Review Services

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City Policy Regarding Distinction Between Structural Alterations and Voluntary Seismic Upgrades

Statement of the Issue

This policy outlines the methodology to be used to distinguish between voluntary structural upgrades and structural upgrades necessitated by alterations or modifications to the building which weaken any portion of the building's vertical or lateral-load resisting systems or increases the stresses in any element of the lateral or vertical load resisting systems. A common example of a voluntary upgrade would be seismic upgrades of a portion or the whole of a building purely to strengthen the building. When building alterations or modifications occur, it is necessary to determine the effect of the alteration or modification on the existing vertical and lateral load resisting systems. All existing elements of the lateral or vertical load resisting systems that are either weakened or result in increased stresses must be evaluated under current CBC provisions.

Definition of Terms Used Herein

Current CBC Loads means using current CBC load levels and load combinations for evaluating the state of stress of an element.

Non-Current Design Loads means using engineer specified load levels and load combinations for the sole purpose of strengthening structural elements of a building.

Element means any portion of the lateral or vertical resisting system of the building. A structural element could be a beam, girder, column, footing, soil, diaphragm, chord, cross-tie, collector, wall- or floor-ties, brace, connection, or similar structural component of the building.

Outline of Procedure

For any element, e_i, which experiences an increase in stress (bending, shear, axial) resulting from proposed alterations or modifications to the building, the engineer shall apply the current CBC loads and material chapters for design purposes. That is, first assume that no alterations or modifications to the structure have occurred. Then, for each element, e_i, evaluate the resulting stresses associated with the current CBC load combinations. Now, for each element, e_i, evaluate the resulting stresses associated with the current CBC loads assuming the proposed alterations and modifications have occurred. If there is a net increase in any of the stress components (bending, shear and/or axial), then that element must be evaluated and designed under the current CBC loads and the current CBC material chapters. In the event that there is no increase in stresses (bending shear and or axial), then the specific element does not require design under the current CBC loads.