**Factors Affecting the Decision to Demolish or Deconstruct an Existing Building**

**Objective:** Comprehensively compare building demolition and building deconstruction, and develop a case for deconstruction over demolition for the sake of resource conservation and sustainability.

**Background:** The deconstruction of a building is the process in which a building slated for removal is carefully taken apart, with the building’s components scavenged for various unrelated projects by suppliers of used building materials. Building deconstruction has been highly effective in some regions of the US, especially with respect to the internal components of buildings. However, the practice is rarely carried out with respect to structural and load-carrying members of buildings, e.g., columns and beams, because of uncertainties about how long-term use could affect the structural behavior of such members. Other factors inhibiting reuse include supply-and-demand considerations, storage availability, difficulties in verifying behavioral properties, building codes, and natural human conservatism (used materials do not have the quality guarantees of new ones).

**Suggested Approaches:** Identify, describe, and quantify deconstruction activities now occurring in urban environments. Estimate the quantities and types of used materials that could be generated in an urban system. Review building codes and regulations to identify potential limitations on reuse of structural building materials. Contact major construction companies and discuss their current practices in reusing structural components. Investigate levels of building demolition occurring in urban environments, and current reuse or recycling of demolition debris. For a particular building, work up a detailed projection of the costs of demolition versus costs of deconstruction. Develop scenarios that envision changes in building removal practice as resource conservation becomes more critical. Present an environmental impact analysis of demolition versus deconstruction, and discuss the market forces that would affect the choice.