

## **ELECTRICAL DEPTH**

### **Four Spaces for Re-Design**

The four spaces to be re-designed for lighting and electrical depths will be the residential lobby, fitness room, retail space, and outdoor courtyard. The retail space requires a tenant fit-out that will be the basis of the architectural breadth.

### **Short Circuit Analysis**

The extent of the short circuit analysis will be panel P1. The path to this panel begins at the service entrance and goes to the main distribution panel MDP-P and then to Panel P1.

### **Depth Topics**

- 1) Using bus duct vs. conduit and wire feeders.
- 2) Performing a short circuit analysis, protective device coordination, arc fault study for the entire distribution system, starting at the service entrance and covering all panelboards.

#### **Topic 1**

This topic will compare the use of bus duct to using conduit and wire feeders throughout the building. Since this building is nine stories above grade, it will be useful to compare these two wiring methods. There is a potential, one way or the other, to save cost on this equipment.

The path chosen for this study will be from the main disconnect switch in the ground electrical room up to the penthouse distribution panel.

Methods used for this topic will be to determine loads and sizing of wires, conduit, and bus duct. A cost analysis will then be performed using R.S. Means to determine the feasibility of altering the current design. Tools to be used during this study will be the National Electric Code, electronic documents, and material pricing research.

#### **Topic 2**

The second topic will consist of the same material in the short circuit analysis mentioned above, however, it will be applied to the entire distribution system, not just one path. A protective device coordination and arc fault study will be applied to these paths as well. The tools used for this topic will include the National Electric Code, SKM software, and electronic drawing documents.