General

The Schematic Design (SD) phase refines the scope of work previously developed in the conceptual design phase. In a typical project major elements including equipment, fire protection, mechanical, electrical, structural, telecommunications and plumbing systems are designed and coordinated through enlarged scale drawings, detailed elevations and plans, and design mock-ups as required. The Schematic Design phase is the last opportunity for design input that involves the User/Owner. The Project Team is focused on integrating all program requirements into the design and providing the contractor with the information necessary to complete a comprehensive project SD estimate and schedule.

Process

1. Refine the floor loads and produce a detailed diagram that shows where they occur.
2. Refine framing design and resolve any major framing issues or discrepancies in the previous design phase.
   a. Any columns in the middle of usable space?
   b. Any conflicts with column locations?
   c. Any beams blocking windows?
   d. Are there adequate supports for stairways?
   e. Are there mechanical equipment clearance issues?
3. Develop a preliminary lateral load resisting system (i.e. the locations of shear walls, moment frames, and braces, etc.).
4. Analyze and document load paths so that the governing cases (with the maximum loads) for beams and columns may be established.
5. Design the governing column and beams for each floor considering bending, shear, and deflection requirements.

Deliverables (100 Total Points)

The schematic design should provide the following:
1. Floor load diagrams (live loads and dead loads indicated separately) for all floors. Calculations of loads on beams and columns based on tributary areas. Determination of the governing beam and column loads at each floor should be documented both graphically and numerically (20 points).
2. A narrative and drawings of framing plan (20 points).
3. A narrative and drawings of lateral load resisting system. How the lateral forces will be resolved in the building and with what system (i.e. shear walls, moment frames, bracing, etc.). Why these systems were chosen (20 points).
4. Design details of one of the governing columns and beams at each floor. Drawings of the governing columns and beams (30 points).
5. Design details of one stairway in the structure. Drawings of the stairway (10 points).

Interim deliverables – Show the result of Tasks 1, 2, and 3 in Deliverables.