

# EXHIBIT B

## MECHANICAL ENGINEER SCOPE OF SERVICES

Project #XXXX-XXXX-XX

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**Note: Where applicable, select italicized items (or strikeout) as appropriate**

### SCHEMATIC DESIGN

1. Provide general consultation with Architect, Client, and other Consultants. Meet with Owner representatives to obtain all standards for systems, equipment and operations. Provide written report to Architect for distribution.
2. Review and comment on Owner supplied program and standards.
3. Review available documents including record drawings, environmental data and site reports as required to become familiar with existing site features (existing building systems, where applicable) and conditions affecting the work of the Engineer. Where applicable, provide analysis and serving capacity of existing utility systems.
4. Compare on-site conditions with record drawings provided by others and identify all discrepancies.
5. Meet with the utility companies to obtain their criteria for the design of off-site and on-site improvements. Prepare schedule of all engineering work performed by serving utilities and coordinate with Architect regarding impact on project schedule.
6. Meet with Architect to develop design concepts/options for all plumbing and HVAC systems, including, but not necessarily limited to, the following:
  - a. Roof and deck drainage
  - b. Interior and exterior gas, sanitary sewer and domestic water systems.
  - c. HVAC systems
  - d. *Active fire protection system, including wet pipe sprinkler system and freeze protection where applicable.*
  - e. *Specialized exhaust and cooling systems at labs, elevator machine rooms, and other special function rooms.*
  - f. *Lab fume/safety hood plumbing and HVAC/exhaust systems, including dust collection systems.*
  - g. *Specialty piping systems in labs, art classrooms, shop areas, and related special function rooms.*
7. Establish design criteria and space requirements for mechanical systems.
8. Provide drawings, calculations, and other assistance to the Architect as required for preparation of Architect's Schematic Design documents. Where directed by Architect, provide feasibility analysis of alternative systems.
9. Review and comment on cost estimate by others.
10. *In addition to item 3 above, conduct all site and building field surveys necessary to understand existing conditions sufficiently to modernize or incorporate new construction.*
11. *(Theatre) Coordinate with theatre consultant for theatre lighting locations, loads, connections, etc.*
12. *(Cold/High Altitude) Provide for heat tape at locations directed by architect in your documents.*
13. *(Hospital Projects)x*
14. *(LEEDS Projects)x*

### DESIGN DEVELOPMENT

1. Meet with Architect to refine design concepts for all plumbing and HVAC systems.
2. Meet with jurisdictional authorities and utility companies to obtain their approval of the Design Development design approach and documents. Prepare schedule of all engineering work and reviews performed by serving utilities and coordinate with Architect on impact on project schedule. Determine that service capacity is adequate to serve the needs of the project. Complete all forms and assist with the application process as necessary. Notify architect of any required connection/engineering fees.
3. Provide preliminary drawings and essential equipment information to Architect and other Consultants (i.e., equipment weight, locations, electrical loads etc.) in such format as directed by

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- Architect, including cut sheets and preliminary specifications. Identify code compliance criteria affecting work of other disciplines.
4. Provide preliminary project analysis for compliance with Owner energy conservation standards and applicable Title 24/AHJ/ energy regulations. Perform analysis by methods as required to achieve compliance. Analysis shall include the building envelope, including wall, floor, roof, and glazing systems. Coordinate with electrical consultant where required to demonstrate compliance with total energy budgets. Consult with Architect on alternative design concepts to achieve compliance and revise analysis as required.
    - a. *Perform life-cycle costing analysis of systems under consideration.*
    - b. *Provide drawings, calculations and complete forms necessary to assist Architect with submittal of State, local and utility company energy grant applications.*
  5. Assist Architect with Owner review/approval of the Design Development documents.
  6. Provide documents for and participate in a quality control meeting for the purpose of reviewing composite "overlay" drawings. See attached Composite Overlay Instructions, Exhibit \_\_\_\_.
  7. Conform to drawing formats as established by Architect. These include scale, sheet numbering, drawing organization, orientation, key plans, match lines, backgrounds and related CAD criteria. Convert all CAD files to program application as directed by Architect.
  8. Review and comment on cost estimate (by others).
  9. *In addition to items listed above, conduct all site and building field surveys necessary to understand existing conditions sufficiently to modernize or incorporate new construction*
  10. *(Theatre) Coordinate with theatre consultant for theatre lighting locations, loads, connections, etc.*
  11. *(Cold/High Altitude) Provide for heat tape at locations directed by architect in your documents.*
  12. *(Hospital Projects)x*
  13. *(LEEDS Projects)x*

### **Modernizations:**

1. *Review existing record drawings and other documentation.*
2. *Conduct on-site review as required to become familiar with existing features, systems and conditions affecting the work of the Engineer.*
3. *Review existing utility service sizes and equipment affecting the work of the Engineer.*