

Under the direction of the NLC Project Director, the Deputy for Mechanical Systems is responsible for the planning, design, analysis, and validation of all of the mechanical systems required for the NLC, exclusive of the areas covered by the Electrical Systems Group and the Conventional Facilities Group. The mechanical systems fall into the three categories of Injector, Main Linac, and Beam Delivery, as well as systems that are common to all three, such as vacuum and magnet systems. During the Pre-Conceptual and Conceptual phases, the Mechanical Systems Group will work closely with these three major accelerator systems groups to convert accelerator functional performance requirements into preliminary designs, including alternative manufacturing, assembly, processing, and test concepts, as well as generating preliminary cost estimates for ED&I and B&H. Initial plans, schedules, and costs for early and sustained industrial base involvement on key components will also be completed.

The specific responsibilities of the Mechanical Systems Group in the Pre-Conceptual and Conceptual phases will include:

- Coordination of all mechanical systems engineering work for the entire project
- Coordination and communication with all other groups to ensure that goals, resource assignments, schedules, plans, and areas of concern and emphasis are clearly defined and mutually coordinated
- Ensuring that goals and requirements are met through the appropriate identification, acquisition, assignment, and monitoring of resources and program needs
- Conversion of accelerator performance and functional requirements into mechanical designs
- Analysis of designs for proper thermal, structural (alignment, stability, rigidity, flexibility), and material properties
- Preparation of plans for industrial base participation in component and assembly manufacturing and installation
- Establishing, documenting, maintaining, and controlling engineering standards
- Defining and implementing an engineering data management system that will provide accessibility, control, and archiving
- Providing plans, schedules, budgets, reports, and cost estimates as required to support the Project Management Control System

During the Execution Phase the responsibilities for the Mechanical Systems Group will expand to include:

- Completion of the full mechanical designs and design analysis for all mechanical components and systems
- Completion of assembly, processing, handling, and installation planning for all mechanical components and systems
- Completion of all RMA, Value Engineering, and Risk studies and analysis
- Completion of the industrial base source development activity
- Implementation of Configuration and Change Control Systems
- Conformance to all ES&H requirements