



## **JOIN OUR TEAM, CREATE A FUTURE FOR EVERYONE**

Our team is the core of our mission to transform cancer treatment by expanding worldwide access to proton therapy – an advanced form of radiation therapy. We are always interested in hearing from anyone who shares our vision and believes that they can advance our mission.

### **Senior Mechanical Engineer**

Regular, Full-Time  
Wakefield, MA

### **Summary**

ProTom's flagship product is the Radiance 330<sup>®</sup> Proton Therapy System ("Radiance 330"). This cutting-edge radiation therapy system uses a synchrotron to generate, transport, and steer high-energy protons to treat with sub-mm accuracy. Under the direction of the Director of Mechanical Engineering, the Senior Mechanical Engineer will be involved in the design, analysis, fabrication, installation, verification, documentation, and support of ProTom's proton therapy systems. Areas of concentration include design, optimization and analysis, structural Finite Element Analysis (FEA) (static and dynamic), thermal cooling calculations (heat transfer FEA and CFD), beamline component development, and vacuum systems.

### **Job Functions and Responsibilities**

1. Provide technical leadership in mechanical design, installation, verification and ongoing development of the Radiance 330 components as directed by the Director of Engineering.
2. Responsible for development of modeling and simulations including facilities and cooling systems, and analysis used to validate the mechanical architecture which meets mechanical requirements.
3. Perform failure analysis of large mechanical systems, including accelerator and beam transport systems, rotating gantry structures, beam delivery, robotic positioning subsystems that fall under ProTom's area of responsibility.
4. Provide input for the design and layout of radiation room facilities and provide input for equipment-building interface documents by liaising with outside Architectural design teams, and providing technical translation between the architectural and the mechanical 3D worlds.



5. Responsible for working with the rest of the ProTom organization to produce a set of test plans, test protocols, and support tooling which demonstrate that ProTom products meet all requirements, specifications, and regulations.
6. Must be well versed in documenting requirements in such a way that they can be partitioned into a mechanical system architecture with direct downward and upward traceability to design requirements to ensure they meet the ProTom Quality Management System (QMS) requirements.
7. Work with the Engineering and Physics teams to refine the mechanical system, subsystem, and component-level technical architecture needed to meet user, regulatory, and system-level requirements and to ensure that the top-level requirements are properly flowed into each subsystem and component-level specification as required by the FDA and ProTom QMS.
8. Develop original designs of mechanical systems, structures and mechanisms from concept through verification/testing and into the production release stage.
9. Corroborate designs with engineering optimization including FEA, CFD, cooling and vacuum calculations.

## **Education and Experience**

1. Bachelor of Science degree in Mechanical Engineering; MSME is preferred.
2. Candidate will possess a minimum of 7 years of industry experience in mechanical engineering; experience within the healthcare industry is preferred.
3. Experience in design for high cycle fatigue and vibration management; familiarity with seismic analysis a plus.
4. Experience in thermal analysis tools - FEA, CFD.
5. Experience in cooling calculations and piping networks analysis.
6. Experience with engineering vacuum systems.
7. Experience in the use of a PLM system.
8. Experience with PDM systems; SolidWorks EPDM is preferred.
9. Experience with generating and managing BOMs.

## **Working Conditions**

1. Office environment for the majority of time.
2. Some work will be performed at proton therapy sites, which are typically installed underground with no natural light.
3. Occasional domestic and international travel to client, vendor, or training sites will likely be required; must be able to acquire all necessary travel documents.