Cornell University
Facilities and Campus Services
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Facility	Par #	Record #	Drawing #	Job Date	Project Title
2085		S	D4324		Wilson Laboratory - E.R.L. Room 143 and Laser Room 147 Cooling Design

Full Scope

Purpose and Need: The purpose of the project is to construct the Control Room and theLaser Room for the Wilson Lab Phase 1A Energy Recovery Linear Accelerator (ERL)Project. A portion of the Wilson Lab stockroom (Rm #141) adjacent to L0 (Location 0)andthe ERL prototype site will be renovated for this purpose and will convert 324 gross squarefeet for the ERL Control Room (Rm #147) and 162 gross square feet for the ERL LaserRoom (Rm #143).The ERL Project will upgrade the current Cornell Energy Storage Ring (CESR) acceleratorto far higher performance by converting its operation to an Energy Recovery Linactechnology. This project is needed because the best x-ray science can only be done on astate-of-the-art x-ray source. The ERL machine will serve as a far brighter light sourcethan the current facility and will be the first world-wide demonstration of ERL technologyfor producing x-rays of outstanding quality for making the best microbeams, highestcoherence, and short pulses available for x-ray science purposes.The National Science Foundation (NSF) has awarded Cornell funds to begin developmentof the new, advanced synchrotron radiation x-ray source, called ERL. The NSF award toCornell funds prototyping of critical components of the ERL at the Wilson SynchrotronLab and thus both the ERL Control Room and ERL Laser Room are immediate earlyproject needs to support the completion of the Prototype ERL (Phase 1A). Prototypeconstruction and testing is expected to be completed in 2008. Cornell then will seekfunding for a full-scale ERL facility (Phase 2).Scope of Work: The scope of work for this PAR includes the following:? Provide final design and construction documents for the Wilson Lab ERL ControlRoom 143 and ERL Laser Room 147. Design is complete and the costs will betransferred to this capital project.? Prepurchase long lead equipment, including: ceiling system, doors and frames, fabricpanels, two (2) fan coil units with condensers, sheet metal constant air volume box,supply air diffusers, lights and dimmers, and fire alarm devices.? Provide demolition of mechanical and electrical components.? Provide general construction, walls, doors, ceiling & room finishes. Only the LaserRoom will include a new suspended ceiling.? Complete mechanical HVAC renovations including constant air ventilation, highefficiency air filtration for the Laser Room, separate DX cooling and reheat systems forthe Control Room and Laser Room. Air cooled condensers will be located just off theloading dock adjacent to Room 145.? Provide and install electrical systems including lighting, power to mechanicalequipment, and fire alarm devices.