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A New Home for SRF Work at JLab in the Technology and Engineering Development Facility

Jefferson Lab

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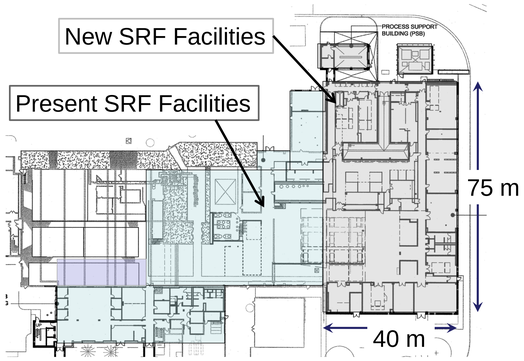
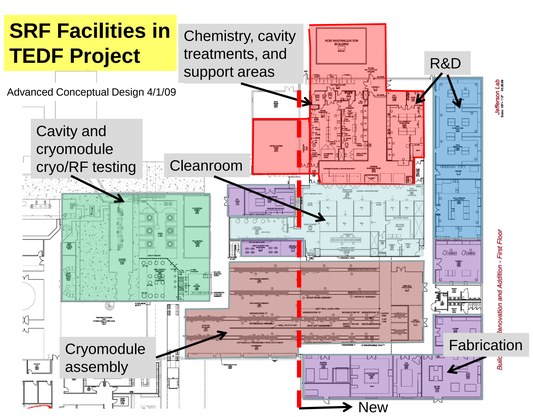
Abstract

A project is underway at Jefferson Lab to fully renovate all of the SRF research, development, fabrication, processing and assembly facilities. Initiated in 2009 and funded by the US Department of Energy's Science Laboratory Infrastructure program, this work together with construction of a new building to house JLab's Engineering Division and detector electronics group is collectively known as the Technology and Engineering Development Facility (TEDF) Project. The majority of the SRF facilities will be consolidated in a new building with 30,000 square feet (3300 m^2) of work space attached to the existing Test Lab. The purpose-built facility integrates fabrication, chemistry, and cleanroom suites and cryomodule assembly lines for convenient, yet flexible operations serving multiple projects in parallel. A robust ultra-pure water system and integrated hazardous materials transfer and neutralization system are included in the project. Construction is underway and Phase 1 move-in is scheduled for early 2012.

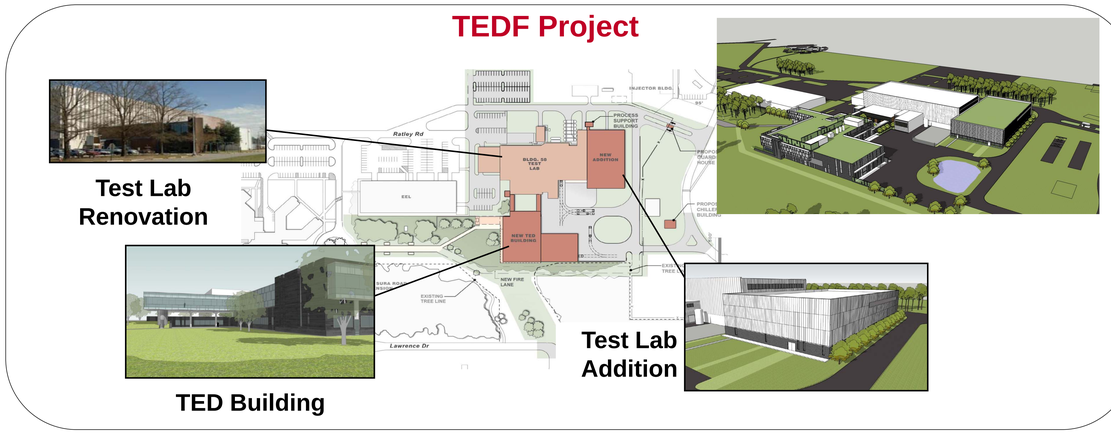
Department of Energy – "Science Laboratory Infrastructure" Project

- Investment in facilities for:
  - Improved energy efficiency
  - Improved life-safety code compliance
  - Improved work-flow efficiency
  - Improved facility sustainability
  - Improved human work environment
  - Improved technical quality of facilities for future work
  - Increased build-out capacity





TEDF Project



April 2011

Demolition of Acid Transfer building

New Process Support Building

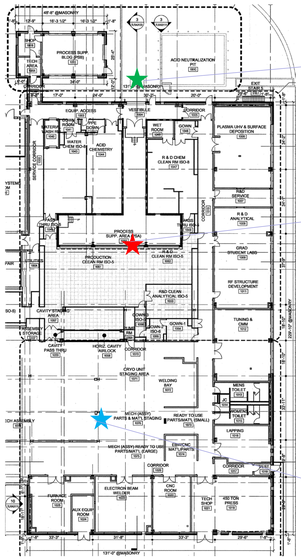
TEDF Infrastructure Design

30,000 sf – new

- **Cavity fabrication (presses, EBW…)**
- **RF structure development**
- **Process development**
- **QC/ Inspection**
- **Clean analytical lab**
- **Vacuum Furnaces**
- **Production chemroom**
- **R&D chemroom**
- **Flexible , multipurpose ISO 4 cleanroom suite**
- **Dedicated CEBAF-support CM assembly lines**
- **Expansion space for other DOE project support**

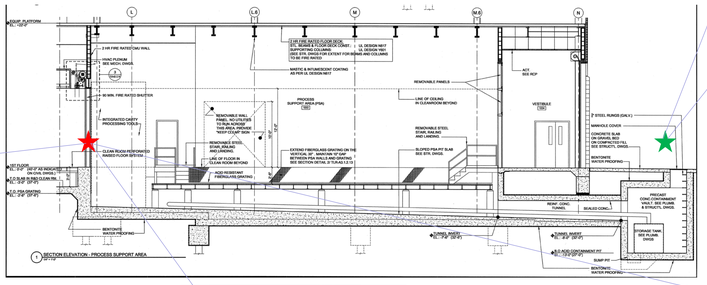
Ultrapure Water System specs:

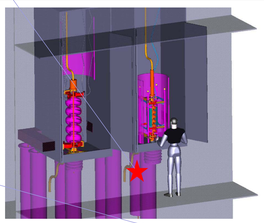
- Semiconductor grade 18.2 MΩ-cm, < 2 PPB TOC
- 60 gpm makeup
- 90 gpm delivery capacity
- 30 gpm 60°C delivery capacity



Integration of cleanroom/chem processing/waste collection

Architectural elevation through process support area

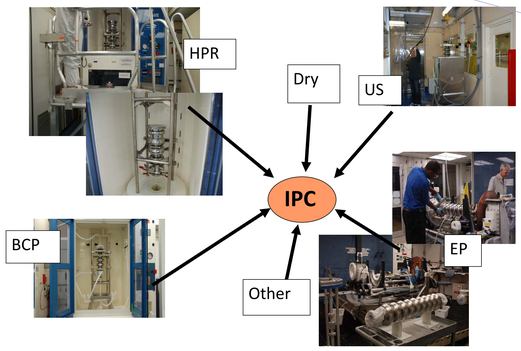




Cleanroom 20 July 2011

Activity Name	Start Date	Finish Date	FY 10 FQ 4	FY 11 FQ 1	FY 11 FQ 2	FY 11 FQ 3	FY 11 FQ 4	FY 12 FQ 1	FY 12 FQ 2	FY 12 FQ 3	FY 12 FQ 4	FY 13 FQ 1	FY 13 FQ 2	FY 13 FQ 3	FY 13 FQ 4
Accelerator Down Periods…	5/16/11 5/15/12	11/15/11 5/15/13													
12 GeV Cryomodule Schedule															
1.3.1.2 Cavity String Assembly	10/25/10	2/13/12													
1.3.1.3 Cryomodule Assembly	1/21/11	6/14/12													
1.3.1.4 Cryomodules Acceptance Test	6/1/11	7/19/12													
1.3.1.5 Cryomodule Installation & Test	8/8/11	4/9/13													
									SRF RELOCATION				REOCCUPATION		
TEDF Schedule															
Early Start/Finish															
6.3.1.2 TED Building Construction	9/27/10	12/30/11													
6.3.1.3 TL Addition Construction	10/1/10	2/3/12													
6.3.1.4 TL Renovation	4/1/11	1/31/13													
			FQ 4	FQ 1	FQ 2	FQ 3	FQ 4	FQ 1	FQ 2	FQ 3	FQ 4	FQ 1	FQ 2	FQ 3	FQ 4

ICP (Integrated Cavity Processing) tool concept will integrate multiple process steps with minimum handling in new TEDF facilities



Cryomodule Assembly Area
20 July 2011

ACKNOWLEDGEMENTS

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