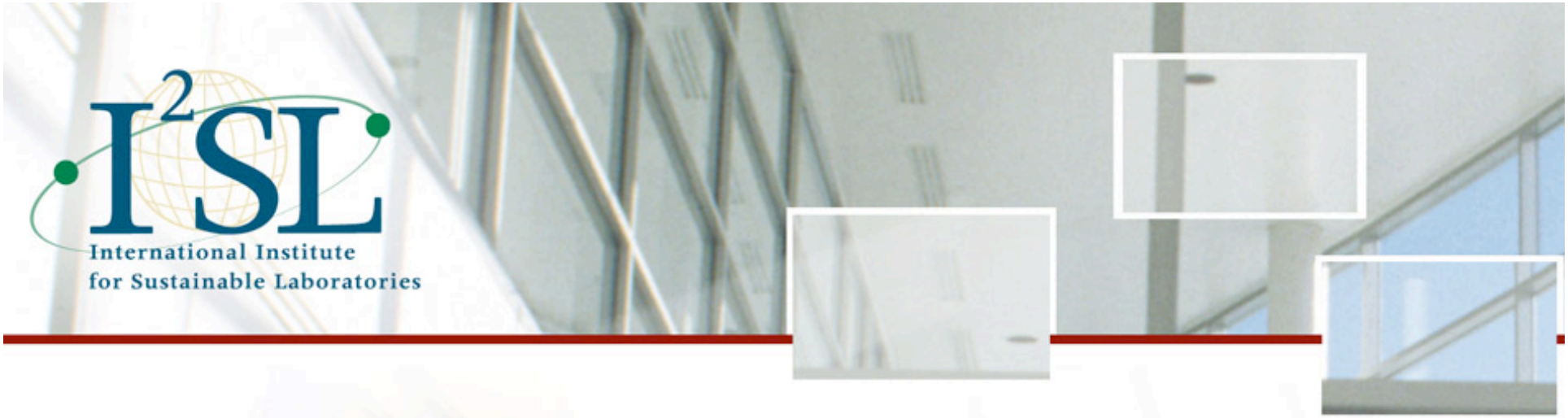

Beyond Laboratories
Beyond Being Green

The International Institute for Sustainable Laboratories

Laboratories for the 21st Century (Labs21®)

A U.S. Environmental Protection Agency and U.S. Department of Energy

Co-Sponsored Program Promoting the Design, Engineering and Construction of High Performance, Low Energy Laboratories

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LABS FOR THE 21ST CENTURY®

What is Labs21?

- Genesis: Ann Arbor, Michigan ESPC
- A joint EPA/DOE partnership program to improve the energy and environmental performance of U.S. laboratories.
- Encourages the design, construction, and operation of sustainable, high-performance, high-tech facilities that will:
  - Minimize overall environmental impacts.
  - Protect occupant safety.
  - Optimize whole building efficiency on a lifecycle basis.

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Purpose of I2SL

I2SL's Role in Labs21

- Labs21 Supporter
  - Since 2005, I2SL has promoted Labs21
- Labs21 Conference Co-Sponsor
  - Official co-sponsor of the Labs21 annual conferences through a non-funded agreement with EPA/DOE.
  - Attracting top laboratory design/engineering professionals internationally
  - Increasing international participation each year
- Labs21 Design Workshop Co-Sponsor
  - Sponsors training and workshops
  - Facilitates project specific technical support

I2SL International Institute for Sustainable Laboratories

Going Beyond the Laboratory

- Other high-performance, high-tech facilities can benefit from green lab design principles:
  - Hospitals
  - Clean rooms
  - Data centers
  - R&D campuses
  - Pilot plant facilities
- Similar facilities, similar requirements, similar approach

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Who participates in Labs21?

- Established in 1999, program includes
  - Over 5,000 members of the Labs21 Network
  - 171 Labs21 Supporters
    - Examples: ASHRAE, AEE, Hawaiian Electric Company (HECO), USGBC, NIST, etc.
  - 53 Labs21 Partners and Centers of Excellence
    - Examples: Bristol-Myers Squib, Pfizer, Virginia Tech, University of Hawaii, Harvard University, Clemson, Stanford and many more.
- http://www.labs21century.gov/

ISL
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Labs21 Federal Partners

- Argonne National Laboratory
- Food & Drug Administration
- Lawrence Berkeley National Laboratory (LBNL)
- NASA
- NOAA
- NREL
- National Science Foundation
- PNNL
- Sandia National Laboratories
- U.S. Department of Agriculture
- U.S. Environmental Protection Agency

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If you are a Federal agency, what is the advantage of becoming a Labs21 Partner?

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Labs21 Partner Technical Assistance

- A technical lead works with each partner to:
  - Set voluntary goals
  - Assess the opportunities for improvements
  - Maximize efficiency in the project
- Technical support for project
  - Participation in sustainable design charrettes
  - Advice on specific technical issues (e.g. heat recovery, fume hoods)
  - Help using the Labs21 toolkit
  - Help using the Labs21 Benchmarking tool
- Networking and Recognition

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Toolkit

- Core information resources
  - Design Guide
  - Case Studies
  - Energy Benchmarking
  - Best Practice Guides
- Design process tools
  - Environmental Performance Criteria
  - Design Intent Tool
  - Labs21 Process Manual

www.labs21century.gov/toolkit

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Environmental Performance Criteria (EPC)

- A rating system for evaluating laboratory design
  - Builds on the LEED™ rating system
- Adds credits and prerequisites pertaining to labs
  - Health & Safety
  - Fumehood energy use
  - Plug loads
- USGBC allows Labs21 EPC to be used for energy points and will be the basis for LEED for Labs

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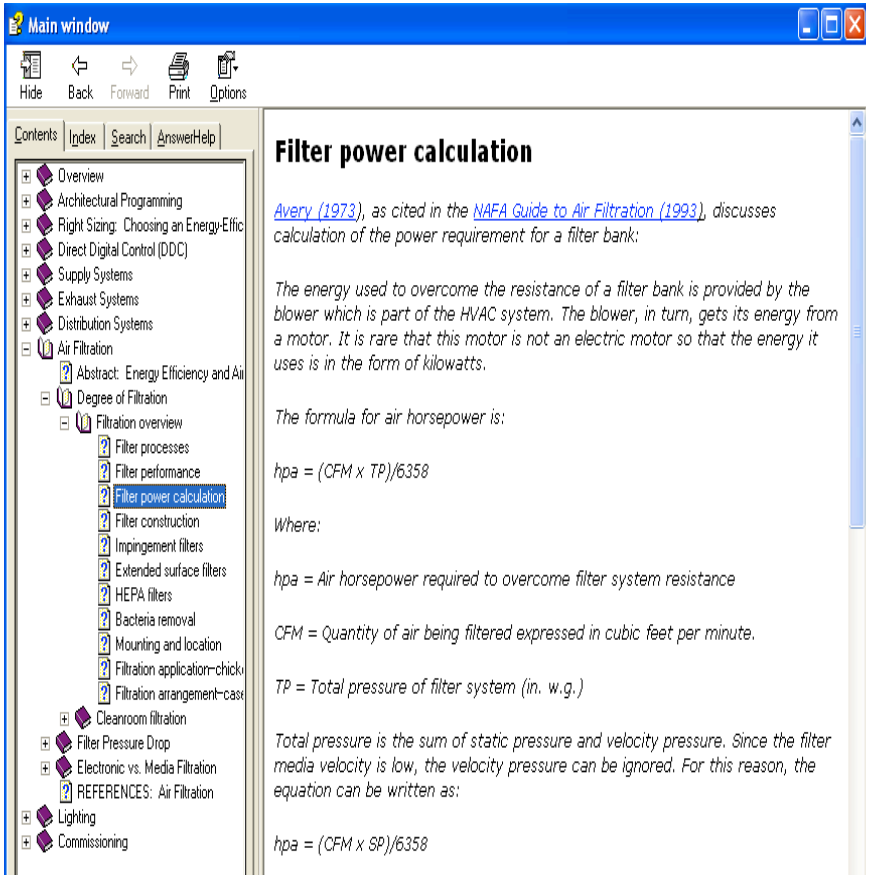
Lab Design Guide

- A searchable, detailed reference on high-performance, low-energy laboratory design and operation
- Available on the Internet and CD



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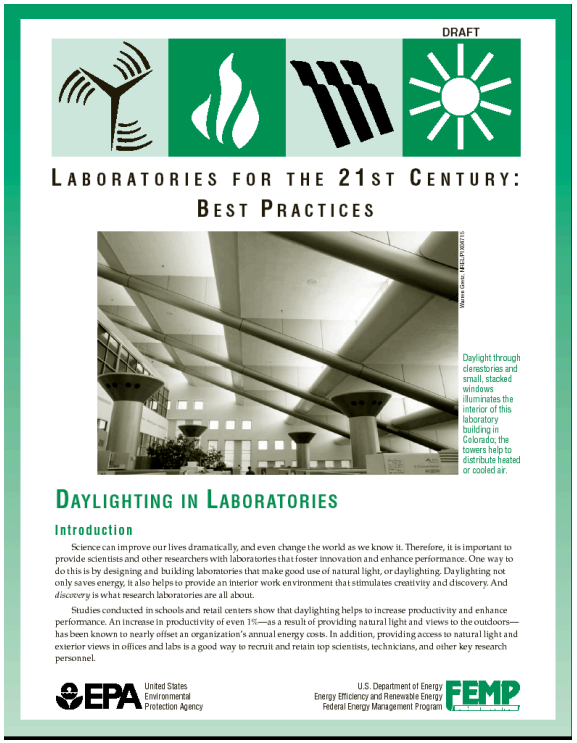
Best Practice Guides

- Describes how to implement a strategy, with implementation examples

- Completed guides:
  - Combined Heat and Power
  - Daylighting in Laboratories
  - Energy Recovery
  - Low-pressure drop design
  - Modeling Exhaust Dispersion
  - Water Efficiency
  - Energy Efficiency
  - Minimizing Reheat
  - Right-sizing

- Several in development



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Training

- Labs21 Design Courses:
  - Labs21 Introductory Course: High Performance, Low-Energy Design
  - Labs21 Advanced Course: Laboratory Ventilation Design
  - Labs21 Workshop: Environmental Performance Criteria
  - Labs21 Workshop: Operations and Maintenance
  - Data Centers *Save Energy Now* Workshop

- Developing Related Courses:
  - Cross Contamination Workshop
  - K-12/Educational Lab Design
  - Renewable Energy for Labs/High Tech Facilities

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I^2SL and Utilities

If you are a utility, what is the advantage of working with I^2SL?

•Promotes the commitment to sustainable design and technologies

• Provides an outlet for your customers to learn sustainable design technologies and incorporate them into daily operations

• Encourages networking and communication with regard to energy and water efficiency in the industry

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Utilities and I²SL

How can you become involved?

- Become a Labs21 Supporter
- In conjunction with I²SL, offer Labs21 workshops to your Federal and non-Federal customers
  - NSTAR
  - PG&E
- Use the Labs21 EPC to green all your customers' high-tech facilities
- Attend and help promote the Labs21 2008 Annual conference

2008 Labs21 Annual Conference

LABS FOR THE 21ST CENTURY®

September 16-18, 2008

San Jose McEnery Convention Center

San Jose, California

Questions?

- For more information:
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  www.i2sl.org

- The Labs21 2008 Annual Conference:
  <www.labs21century.gov/conf>