Sustainable Laboratory User Manual
2020 Report-out

Perkins&Will
Who we are

Phil Wirdzek
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I^2SL New England – Sponsor Chair
I^2SL New England – Events Chair
Who we are
October 8, 2020
Agenda

01 – Inception

02 – Year 1 Journey Traveled

03 – Team Contributors & Introductions

04 – Mission Statement & Goals

05 – Format

06 - Year 2 Action Plan

07 – Call for Engagement Opportunities

08 – 2021 Schedule and Goals

>>> I2SL Atlanta 2021 Conference
Phil Wirdzek discussed I^2SL initiatives at the Perkins and Will Convergence Symposium 2019 in Toronto.
Progress Update

Inception – Apr 2019
Concept Launch – Sept 2019
Conference Feedback – Oct 2019
Focused Sustainability Perspective
Revised Mission Statement – Spring 2020
Steering Committee Launch – June 2020
Sustainable Laboratory User Manual – web link

www.i2sl.org/working/labusermanual.html
1. Which Industry Role do you identify strongest? (MC)

2. Which Region are you located? (MC)

3. Were you familiar with the Sustainable User Manual working group before seeing it on the Conference Agenda? (MC)
Steering Committee Agenda

Steering Committee Launch – June 2020

- Mission Statement workshops
- Format workshops
- Action Plan workshops (2, 5, 10 years+)
The Sustainable Laboratory User Manual is envisioned as a living resource that advocates a facility’s sustainable purpose. This Manual enables laboratory owners, operators, and occupants to intelligently use, maintain, and renovate the building over time. Infrastructure functionality and optimal operations are collated into an open sourced, expandable framework that delivers a comprehensive view of facility safety, flexibility, sustainability, and resilience.
Goals

• Provide a tool to document laboratory performance goals
• Enable lab environments that can respond to change
• Make laboratory occupants a priority
• Be an advocate for maintenance
Documenting Performance


Responding to change

1. Renovate the lab. Fumehood capacity. Converting the labs to much greater intensity. Capture the design criteria used for initial design to inform future renovations. Documentation. LVRA/LVMP.

2. Flexibility below the ceiling and Adaptability holistic building, expandability.

3. Redundancy of systems

4. Risk factors and recovery measures (resilience)
Considering Occupants

1. Safety information
2. Integrated room inventory: fiscal, PPE, maintenance, chemical inventory.
3. Wellness and health
4. Occupant comfort,
5. Emergency response
6. Guidance at the user level. Enable those in the facility to achieve / maintain / gain performance. Empowering occupants. Help the users understand the intent of the building.
7. Agreement for the occupants of the building to operate in a sustainable way. Integrating with facility training processes.
8. Capturing required training. Training of the lab users.
9. Capture safety training. First responder. User training for disaster response. Planned as the building is designed. Maintenance personnel often get the first call, but may not know what to do.
1. Infrastructure report card. Listing of MEP systems / capacities / age of equipment.

2. Service level agreement for each room/zone: temp, air, water, service, cooling, custodial. Contains a basic level of service. Anything above that level of service requires PI to pay extra? Lab types

3. Capture safety training. First responder. User training for disaster response. Planned as the building is designed. Maintenance personnel often get the first call but may not know what to do.
Goals

• Provide a tool to document laboratory performance goals
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Format Fundamentals

1. A format that is easy to gather and store information on how building was designed, what it’s intended to do, and how it needs to operate.
2. Need to allow data to be secure.
3. Provide option to include in benchmarking data.
4. Management protocols on controls should be included.
5. Compliment other I2SL Working Group missions
The Format will not:

1. Recreate documents already existing.
2. Over complex system, not agile.
3. This is not a design guide.
Format Mysteries

1. Which database or program will be used?
2. Cloud based or internal host?
3. Level of visualization
4. How could it compliment the BAS system?
Story Board / Mock up
Year 2 Action Plan

1. Call for Thought-Leadership
2. Subcommittee Chairs
3. Format / Interface Development
4. Beta Mockup
5. Pilot Project
6. Federal Lab Partnership
Engagement Opportunities – Interconnected Subcommittees

1. Laboratory Planning
2. Laboratory Equipment
3. Building Systems
4. Architectural Building Design
5. Policy / Reporting / Other Operational Programs
6. Software Interface / Maintenance
1. Laboratory Planning

- Retroactive Basis of Design
- Module concept, dimensions
- Workflow within the lab
- Notable flexibility / adaptability features
- Constructability highlights

Tom Quirk, Whiting-Turner
2. Laboratory Equipment: where research meets facilities

**Most equipment:** Not a facilities concern. Low kW, intermittent, or highly specialized. OTOH: Built-In = Facilities

**Mission Critical Equipment & Zones:** Cold Storage (ULT Freezers), Env. Chambers, Hi Vacuum (e.g. Mass Spec); NMR, process water cooling, ventilation of hot rooms—Need informed mechanical support

**Accountability:** Failure response chain, maintenance & reasonable service providers, shared occupant/facilities?

**Define:** Service Level Agreements for each zone: Watts, cooling W/SF, dust, cooling water, water purity, temperature range; E-Power

**Consider alarms:** wired vs wireless, installation, maintenance costs, response personnel

**Incentivize:** Energy Star, shared equipment & consolidated functions, power, water and ventilation needs, normally off.
3. Building Systems

- Capacity and design assumptions including redundancy and diversity
- Digital operations manuals, including cut sheets
- Plan for future adaptability

Blythe Vogt, Affiliated Engineers Inc.
4. Architectural Building Design

- Architectural systems user guide, example is façade technology
- Life Safety strategies
- Specialty area design
- Planning and management of modifications

Dave Swanson, DLR Group
5. Policy / Reporting

• Environmental Health and Safety
• Reporting to national, state, local institutions (i.e. local power company, LEED, etc.)
• Resource management
• Emergency Response Planning

Sharon Altmann, MRIGlobal
6. Software Interface / Maintenance

- Confirm extent of use and distribution of content
- Organization of content
- Design interface for dashboard
Next Steps

2020 Call for Contributors

Subcommittee Chairs / CoChairs identified

2021 Monthly Subcommittee Meetings

2021 Biweekly Steering Committee

Content Development

1. BETA Mock up
2. Complete action plan - 2 years, 5 years, 10 years, beyond
3. Compile and present
4. OCT / Conference Time!
Questions & Answers
Question 1: What are you most excited / worried about in the development of this tool?
Question 2: What is your facility need for this tool?
Question 3: What are we forgetting about in our first step in developing the tool?
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Enter your Information in the chat box if interested in learning more...

Email: info@i2sl.org (Subject: Lab User Manual)