Quick-Start Guide to Using the I2SL Laboratory Benchmarking Tool for a Lab Energy Score and Operational Emissions Score

Labs2Zero is a voluntary program sponsored by the International Institute for Sustainable Laboratories (I2SL) that is dedicated to advancing the decarbonization of laboratories globally by scoring and suggesting improvements to lab buildings to save energy, reduce emissions, and improve performance. At the heart of Labs2Zero is the I2SL Laboratory Benchmarking Tool (LBT), through which users can now access an Energy Score and an Operational Emissions Score for their lab buildings. The scores are 1-100 percentile rankings, meaning a lab building with an Energy Score of 85 has better energy performance than 85 percent of similar facilities; this is the same for the Operational Emissions Score except that performance is measured using greenhouse gas emissions associated with building energy use.

The Labs2Zero Energy and Operational Emissions Scores are free, as long as you have access to building utility records and facility data. This quick-start guide will walk you through the process of using the LBT to get your lab building's scores and briefly describe the minimum data needed to benchmark a lab building in the LBT.

> **Note**: These scores are currently in a pilot phase, and I2SL welcomes feedback from users to improve accuracy and usability. Let us know what you think by emailing lbt@i2sl.org!

Setting Up an Account

Go to https://lbt.i2sl.org and create an account here or by clicking on the "Sign up!" link on the LBT home page. Once you sign up, you will receive an email from lbt@i2sl.org or lbtbeta@kw-engineering.com to activate your account. If not, check your spam folder! Want to know ahead of time what data you'll need? A full list of LBT data fields is available here; the basic data needs are outlined below.

What Minimum Data Is Needed to Get a Lab Energy or Operational Emissions Score?

Start entering your building's data via the Your Buildings tab in the LBT. Click on "New Building" to get started on the first facility. Under the **Basic Info** section:
- Type of Record: To generate Energy and Operational Emissions Scores for an existing building, choose "In Operation." The Project Phase field will be greyed out.
- Data Types to be Entered: Choose Energy Usage. See the Embodied Carbon Benchmarking Quick-Start Guide, also in the LBT, to learn about benchmarking that data.
- Building Status: Indicate whether you are entering test data or a real building.

Following are tips for what to enter in the **Building Info** section:
- Facility Name: Give your lab a name you will easily recognize.
- Year Built: Use the year of construction, or the most recent gut renovation.
- Address: Begin typing the building's address and choose from the dropdown (Google lookup). All worldwide addresses are accepted, and approximate locations (e.g., just the city name) can be entered if needed. *Note—this data will not be visible to others!*
- Organization Type: Choose the dropdown option that most closely matches the type of organization that occupies the building.
- Predominant Lab Use Type: Choose the dropdown option that most closely represents the type of work done in the facility's labs. If multi-purpose, chose the most prevalent.

You'll also be asked for the total gross square footage (GSF) of the building, the total lab area, and the square footage of specific lab components; use the following definitions.

Gross Floor Area: Total area of a building (i.e., GSF). Exclude open spaces (e.g., parking garages).

Total Lab Area: The spaces in which conditions such as tight temperature control and high air recirculation rates are required. This includes open labs and support spaces such as equipment rooms, procedure rooms, vivarium holding rooms, physics labs, maker spaces, and cleanrooms, which may include recirculated air. Do not include *non-lab areas* (e.g., language labs, computer labs, office space, and utility space). The lab area must be less than the total building area.

Component Lab Areas: Enter the breakdown of lab space between different types of labs, which include biology, chemistry, physics/engineering, vivarium, makerspace/workshop, and other. The total equals the total lab area.

In the **Building Systems** section, users must enter the occupied hours per week (at normal levels, do not include occasional overnight use) and the total number of ducted fume hoods in the facility. Ducted fume hoods are those connected to the building's exhaust system, and an approximate number is acceptable.

Sample LBT Inputs in Required Data Fields	
Data Field	**Example**
Type of Record	In Operation
Data Types to be Entered	Energy Usage Data
Building Status	Real Building
Facility Name	Super Bio Lab
Year Built	2000
Building Address	2300 Wilson Blvd, Arlington, Virginia
Organization Type	Commercial: Biotech
Predominant Lab Use Type	R&D: Basic Research
Number of (Lab) Buildings	1
Floor Areas	Gross Area: 200,000 sf Total Lab Area: 80,000 sf Biology Area: 60,000 sf Vivarium Area: 20,000 sf
Occupied Hours Per Week	80 hours
Number of Ducted Fume Hoods	20
Annual Utility Data	Data year: 2023 Electricity: 12,000,000 kWh Natural Gas: 400,000 Therms

Finally, in the **Utility & Emissions** section, enter the year for which utility data applies, along with whole-building energy use data by fuel type using meter data, utility bills, or tracking systems. If you have utility data in ENERGY STAR® Portfolio Manager, you can use the "Portfolio Mgr" tab to import it! There are also optional data fields you can populate to calculate the lab building's emissions more accurately.

Once this basic data entry is completed, the lab building's Energy and Operational Emissions Scores can be viewed in the **Your Buildings** tab. Note that during the pilot, warnings are provided for scores that may not be accurate because of a data entry issue, or if that building type is not yet well-represented in the LBT database. Users can click on the triangle icon for more information.

Questions or concerns? Please send your feedback, questions, or error reports to lbt@i2sl.org.