



IDEAL

INTEGRATED DESIGN AND ENERGY ASSURANCE LABORATORY



University of Colorado
Boulder



NREL
NATIONAL RENEWABLE ENERGY LABORATORY



A handwritten signature in black ink that reads "Gregor Henze". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Gregor Henze, Ph.D., PE
IDEAL Director

A warm welcome to this inaugural brochure of the Integrated Design and Energy Assurance Laboratory, short IDEAL. At the heart of the laboratory is the realization that high-performance buildings require integrated engineering design, novel building technologies, innovative construction practices that respond to the demands of these novel technologies, as well as the operational modeling and analysis tools that enable the continuous assurance of actual building energy performance compared to the design intent. IDEAL is a collaborative organization bringing together buildings sciences faculty and researchers from the University of Colorado, and building engineers from the National Renewable Energy Laboratory to join forces in the new Sustainable Energy and Environment Complex (SEEC). Here, we investigate new building concepts and technologies, create a well-prepared workforce in architectural engineering for zero energy buildings, enhance engineering tools for both design and operation, and spread the word about successful practices for achieving best-in-class indoor environmental and energy performance over the many decades of a building's life cycle.

Our Mission

The goal of IDEAL research, design and education support is to produce buildings that synthesize a project's context of climate, its patterns of use, the resulting loads and systems to produce a building that is healthier, more comfortable, productive and at least 50% more energy efficient than today's common best design practice.

Who We Are

The Integrated Design and Energy Assurance Lab (IDEAL) is a self-supporting RASEI service to the building industry. The IDEAL includes interdisciplinary UCB and NREL research, faculty, staff, and graduate students that support the development of high-performance commercial and institutional building design and operations including lighting, daylighting and energy infrastructure. A distinguishing feature of the lab is the focus on controls and operation to provide long-term performance assurance of ZEB designs. The IDEAL will establish design and construction market relationships in the Great Plains and Mountain Region through the provision of technical assistance, design guidance, and building energy efficiency research.



What We Do

The IDEAL is about increasing building value at no extra project cost to the owner, and meeting the goals outlined in our mission with cutting edge technology and practices. Functionally, the IDEAL's goals are to assist in decisions that support 50% reductions in a building's loads and 50% increases in its system efficiencies, utilizing state-of-the-art simulation and verification techniques. These ambitious goals are continuously monitored through model based commissioning and energy analytics, centrally housed in the IDEAL, powering energy dashboards and decision making at the building site.



Goals of IDEAL

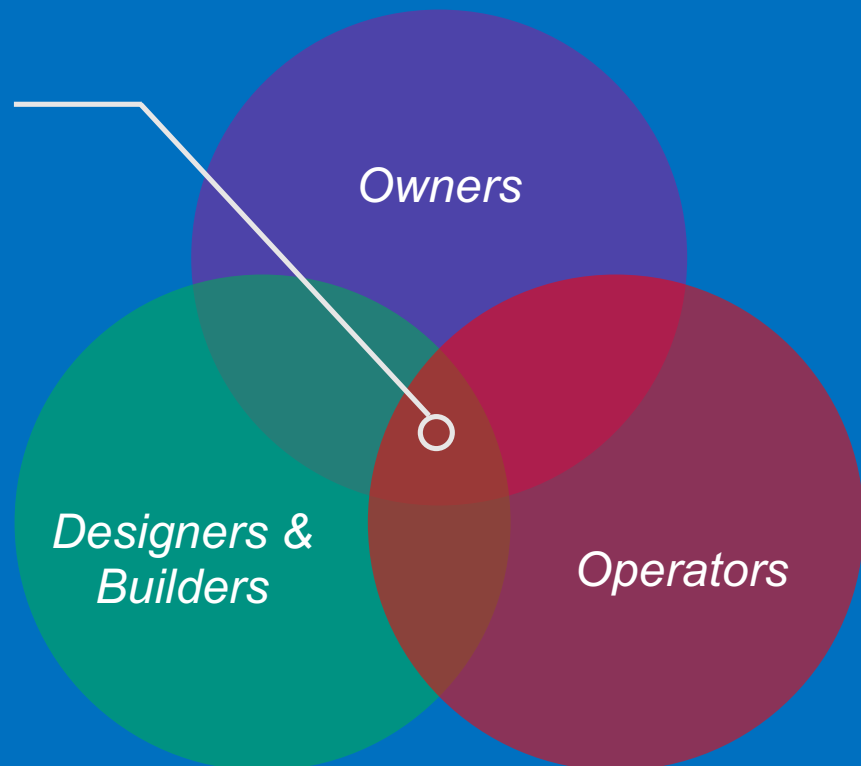
Our purpose is to develop a local organization that assists in the performance assurance (from design to operation) of zero energy buildings here in Boulder, making boulder the foremost location for US experience in ZEB.



1. Investigation of novel building technologies, their processes, and operation
2. Workforce development in both architecture and engineer of Zero Energy Buildings to feed the pipeline of skilled labor
3. Deployment, testing, and improvement of simulation and analysis tools for design and operations
4. Offering first-hand experience of Zero Energy Buildings in the Colorado front range and centrally coalescing real-time information on their performance using visualization and energy analytics

The Coming Together of the Industry

The IDEAL is focused on bringing together all of the involved parties in the building industry. Not only are building designers and construction contractors invited to participate in events at the laboratory, but we welcome operators and buildings owners to join as well. Growing the interest for zero energy buildings starts at the very beginning with the owners, and travels through design and construction to delivery, and operations for years to come can make or break success. By involving all three parties, the IDEAL will help promote a holistic approach to how we view our built environment, and promote smarter practice to meet advances in technology.



Vision for 2016

Initial steps to actualize IDEAL from a thought to a functioning laboratory...

[Define Laboratory Leadership]

Partnership with the National Renewable Energy Laboratory (NREL) and the Renewable and Sustainable Energy Institute (RASEI) provides IDEAL with access to individuals doing cutting edge research in sustainable building technologies.

[Establish Founding Members]

During the spring and summer of 2016, IDEAL will reach out to potential industry partners who are interested in becoming founding members, providing them first access to technology, seminars, and top engineering students involved with the laboratory.

[Pursue Diverse Funding Options]

With a building already secured on the CU Boulder campus, IDEAL will pursue funding for equipment, operations, and staff through a wide variety of sources including industry partnerships, grants, and local, state, and federal office.

[Learn and Adapt]

Founding a new research institute inherently brings to light new challenges that could never be foreseen. IDEAL staff will work to meet new challenges head on to find creative solutions to keep the laboratory moving forward.

Founding Membership

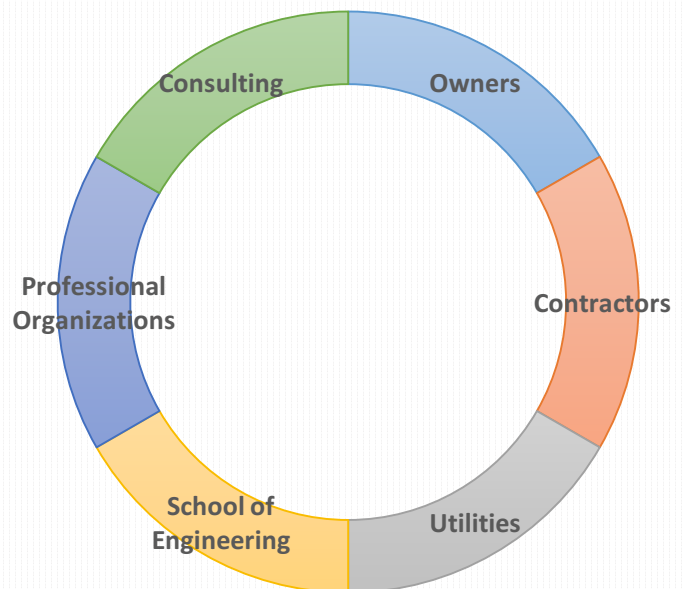
Benefits of Membership

The IDEAL is looking for its first round of member companies to join in the founding of the laboratory. First round members will help shape the foundation of the laboratory and retain founding status as the IDEAL grows.

Member benefits include:

- First access to technology and tools developed within the IDEAL before public release
- Participation in advisory board meetings to help outline research directions for the coming year
- Interaction with National Renewable Energy Laboratory staff and technologies
- The opportunity to interact with of the School of Engineering & Applied Science's top building technologies students
- Discounts on workshops, conferences and seminars held at the IDEAL

We have { *the climate
the expertise
the relevant companies
a dedicated building
political support*



Contact US

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